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Original text and translation of a Scroll of Silver in the Burmese language, found in a Buddhist Pagoda at Prome.—By Major PHAYRE, Commissioner of Pegu.

It is well known that the Buddhists of Burmah, like those of ancient India, when building the solid edifices called Pagodas, construct therein, generally towards the upper part of the fabric, a hollow chamber in which they deposit relics, and a variety of holy and precious objects. The Burmese also generally place therein, a writing on a thin scroll of silver or copper, setting forth the objects of the founder, and containing a prayer for the salvation of himself and his friends.

Near the town of Prome, there lately stood a small modern Pagoda of brick and mortar, from the chamber of which, a silver scroll was extracted, and as the writing records in simple language, the motives which urged the author, a Buddhist monk, to undertake in the year 1792, A. D. the restoration of the ancient building which formerly occupied the site, I have considered it worth publishing. It is hoped that this record of the motives and hopes which actuated the restorer of the Pagoda, called the “ardently desired,” will tend to prevent other Buddhist sacred buildings from being wantonly defaced and dug into, as has heretofore been too commonly the practice, since Pegu became a British Province.

The language of the scroll is sometimes obscure, but the translation has been made as literal as was consistent with clearness of

meaning. A few notes have been added to explain the text where it seemed to require elucidation.

The original Burmese is as follows :

ဇယျာဇာ။ ။ရတနာဘေဝေါင်းထို့၏တည်ရာ။ကုန်းဘောင်း
ပြည်ကြီး ကိုခရီး ရတော်မူသောဘေဝေါင်းမင်းတရား ကြီး
သားတော်။ဘတုံ မင်းသားရွှေထီး ရွှေနန်း သိန်းမြန်း စမ္ဗာယံ
တော်မူ၍သန့်သို့ခ ရေံ။ လူတို့ ကောဇာ သက္ကရာဇ်
ဘရေဝ။ဘတိတ် ဘာသနာတော် ၂၂၂၂သို့ရေံလျှင်။ဘူး
ကန်းခြောင်းတောင် ဘက်တွင်။ ဂုဠသမ္ဘဝ။ မဟာသမ္ဘ
ဝမင်းညီနောင် ၂ရေံတို့သည်။ရသော့ ကြော င်သွီးဘေဒါရီ
မင်းသွီးနှင့် တွေကျ၍ရေံနရာကိုခကြောင်းစွဲ၍ရွစောဟုသ
မုတ် သောဘုရားသခင် သည်။ ကာလရှည်လျား၍ပြက်ပြား
ဟောင်းခွမ်း၍ ရှိသည်ကို။ ကြည်ညိုသောစေတနာစောစိတ်
ဥပုတ်ပြဋ္ဌာန်း သောမဟာ ကုသိုလ်ခရေံတို့သည်ရေံလျှင်
ကဲ့သို့မပြတ်သေမည်ဘေးကိုခရံ တလဲတဲခေခင့်မေ့မိသ
ည်ဖြစ်၍။ ခသစ်ဘဝခန္ဓပြောင်းသွား ရသော ဘာဝတိုင်း
နှိုက်ပတ်ခရိတ်ကဲ့သို့မကွာ။ ပါရာသောခလီး ကိုတရားနှင့်
ခညီ။ ဗြဟ္မကွဘဝနှို။သိုပိုက်ထား ခခပ်ဘာဝတ္ထုတို့သ
ည်။ပစ္စည်း တို့သည်တဆံချည်မျှမလိုက်။ စွန့်ပြစ်ခါခါ။သွား
ရာသောလမ်းခရီးကို။နှလုံပိုက်၍။သုံးဆောင်တိုက်သောပစ္စ
ည်းကို။အနှလုံးတော်ပိုက်၍။ဟောတော် မူခဲ့သော။ကုလဒု
သကာခနေသနုရမာနုလပနဇပုနဝစိဝိတ္ထာရ။ ခစစှိသောခ
ဓမ္မပစ္စည်းတို့ကိုရှာ င်ရှား၍တရားနှင့်ခညီ။တကာ၊တကာ
မတို့သည်သဒ္ဓါဒေးယှရှိ၍ပင့်ခေါ်သည်။မဂလာခမဂလတို့တွ

င်း။ရရာသမှုပစ္စည်း။တို့ကိုမဆိုမပြရ။ ကပ္ပိယကာရကသိန်းစ
 ညှင်းသိုဝိုက်ထုပ်၍။ခုပ်ဖိုးပရံလက္ခ။ ခဏ္ဍာခတိုင်းပေး၍တ
 ည်သခင်တိုက်နေရှင်သီလစာရပုဂ္ဂိုလ်သုမြတ်သည်။ရာခ
 ပ်သောသိက္ခာပုတာခတိမ်း၊ သိမ်းလေးသောင်းတူသောသီလ
 ခဏ္ဍတို့ဖြင့်တုခပ်သောသက္ကရာဇ်သဉ္ဇေတွင်ပဉ္စသျှံခဏ္ဍ
 ဖ်ကိုကောင်းစွာရပြီးမှ။ ဝါ၇၀ပြည့်တွင်။ ပြင်ဆင်လုပ်ဆော
 င်။ဌာမနာ တော်ကား။ သိဒ္ဓါတ်မင်းသား တောတွက်ဟံခရ
 ခဏ္ဍ။ဒုက္ခစရိယာ ကြင့်ဟံ။ခဌာဝိသတရ။ ကောင်မှုရှင်ရ
 ပ်။ဓမ္မတော်ခတ်ရှင်။လျှော်ပတ်တကွဲ။ပုလလဲဆင်မင်း။ တင့်
 ချင်းရုပ်ထူတော်ပေါင်းတို့ကို။လိုခပ်သောကုသိုလ်တရား။ဝ
 မ်းပါးကျသည်ဆမ္မာရုပ်။ မပြတ်ဌာန်းနိုင် ဘေတခေတနာ။ကို
 ပ်မက္ခာသည်ဖြစ်၍။စေတနာခသစ်။ပြစ်ကျသော တကာ၊
 တကာမာခပေါင်းတို့နှင့်။ ခေါင်း တညှပ်ပြု၍။ တာပနာဟော
 င်း။တပ်လောင်းကောင်းမှ။ သဘာတော်ခရာခခမ်းတို့ကို။
 ဆွမ်းပန်းဘော ဇည်လုပ်ကျွေး ကောင်းမှပြု၍။ ဘာသနာ
 တော်ရဝဝပတ်လုံး။ခပ်သိမ်း ဘေတသျှံတို့၏ကြီး။ ကိုပပ်
 ၏ခစီး ခဏ္ဍာ ဖြစ်ပွားစိန္တဘေတဌာ။ရတ နာရွေဌာ။ချယ်င
 တွတင့် ဆုံး။ငမိုင်းလုံး ကြာပြီတသီး။စရားသီး။ ထီးတော်ခ
 ဆော်ဆဉ်တို့ကို။တဆံမြူ။မကျရသခင်။ ပြည်စုံကောင်း
 မွန်စွာရွက်ဆောင်၍။ ခဏ္ဍမောဒနာ။ဘာရခဆုံးရှိဘေ။ရူ
 ပကာပာတော်၏။တင့်တပ်ချင်း သို့ရေခင်။ကျပ်ဆော
 င်ရွက်၍။ချစ်သက်ချမ်းသာစွာ။ ကျိုးစားခခေးထုပ်ပါသည်။
 ဣမံမေပညာခသဝက္ခယံဝဟံဟောတူ။

။

Translation.

Be victorious.¹

When the Bhadoon Prince,² the royal son of the great Aloung-Phra, who ruled over the great country of Koonboun,³ that depository of all earthly treasures, had enjoyed the golden Palace and Umbrella for fourteen years; in the year of men 1154, and when⁴ religion had reached (the year) 2336; (then) the Pagoda built on the south side of the Bookan⁵ stream where the brother Princes,⁶ Isoo-la-tham-ba-wá, and Maha-tham-ba-wá, met the daughter of the supposed hermit, named Princess Bhédaree, and (in after times) from their having on that spot become engaged lovers, the Pagoda was called "The ardently desired;" (the same) having from the lapse of time become decayed; (therefore) from a sincere benevolence, with a fixed and decided desire to engage in a great work of religious merit, which like a placid stream of water ceased not; and continually remembering the evil—Death; that one transmigration from a living body goes on to another, and that according to universal law, we pass to another state of existence as surely as the shadow follows the substance; that of the goods we treasure up in the present life, nothing to the extent even of one hair can follow us, but that we must part from them; laying to heart that there is a road we must all one day travel, and valuing only such things as are worthy to be used (in a religious building); remembering the words of the Divine preacher, and rejecting all unlawful goods; and accepting only what devout men and women bestow in righteousness; forbidding not what is offered at joyful festivals or mournful assemblies; receiving all contributions and offerings, and purchasing bricks and paying masons' hire; the excellent Abbot Sheng Thee-la-tsa-ya, who resides in the Lee-oung monastery, by virtue of the observance of the rules incumbent on priests, which accumulated his religious merits as it were to the thickness of the earth 230,000 yoodzana,⁷ had in the year 1116 reached the grade of a Pyeen-tseng,⁸ and when he had accomplished forty yearly fasts, he prepared a relic shrine, in which to place a representation of Prince Theid-dat⁹ going forth to the wilderness; of his enduring sorrows; images also of the twenty-eight Buddhas of a former world period;

casts of the eight holy places,* the precious intelligent relic of Buddha, all handsome as the elephant Poo-la-lai. The religious merit aspired to, though it may not be attained, yet the desire for it cannot be obliterated, (therefore) joining with those of the laity, men and women who were acting in accordance with each other, and (I) taking the lead of them, the ancient relic chamber was repaired; and the implements required for the good work and for the clergy, that is, refreshment and flowers, being provided, may the leader of all those men derive advantage therefrom throughout the 5000 years¹⁰ of this religion. Jewels, gold and silver, (were given) to beautify the building. The lotus and every part thereof with the Htee¹¹ and all its apparatus were complete, so that carrying on the work well until it was finished, at the time of meeting to inaugurate the building, the sacred fabric was beautifully adorned by (my) exertions given joyfully and as a labour of love.

On account of this good work, may I at last attain that blissful place, where passion troubleth no more.¹²

NOTES.

1. *Be victorious*.—The original is a Pali word generally used at the commencement of religious documents, and implying, I believe, that the disciples of Buddha must strive to overcome their passions.

2. *Bhaddon Prince*.—This king was the fourth son of Aloung Phra, the founder of the present dynasty of Burmah.

3. *Koonboun*, is the name of the original district of the family of Aloung Phra.

4. The era of religion dates from 543 B. C. when Gautama attained Paree-neibban. The year of religion 2336 therefore = A. D. 1793.

5. *Bookan* is the name of a small stream which enters the Irrawaddy, a short distance South of the town of Prome.

6. *Isoo-la-tham-ba-wa*, and *Ma-ha-tham-ba-wa*, were the sons of the king of Tagoung, an ancient kingdom to the North of Ava, believed to have been founded by a race of Buddhist kings from India. These Princes being blind were expelled their country as unworthy to reign. Being put on a raft they floated down the Irrawaddy, and from incidents which occurred on their voyage, many of the names of the cities and towns on the banks of that river are derived. While floating down they had their sight restored by the interposition of a Bhee-loo-ma, or female

* There appears to be some error here, or an allusion which I do not understand. The Burmese reckon seven holy places, where Gautama performed seven characteristic acts, after he attained Buddhahood.

monster, and seeing for the first time the sky stretching over the earth like a cover, and the earth within, they exclaimed "Mo-boon" (sky cover) and "Myé-dai" (earth within), from which those places received their names. They came on to the Bookan stream, and there met the hermit's daughter, who had come to draw water. This is believed to have occurred about 484 years B. C. The hermit or *Ra-thé* proved to be the maternal uncle of the Princes, who had long before left Tagoung, and after having a daughter born to him became a hermit in the hills adjoining Prome. By his advice the people of the country who were of the Pyá tribe, chose Prince Maha-tham-ba-wa, as their ruler, he married the hermit's daughter Bhe-da-ree, and they founded the city of Ra-thé near to Prome, where the descendants of Maha-tbam-ba-wa, reigned for twenty-seven generations.

7. *Yoo-dza-na*.—A measure of distance reckoned to be about 13 English miles.

8. *Pyeen-tseng*.—A grade of the Buddhist priesthood.

9. *Prince Theid-dat*, i. e. Gautama the son of the king of Kapili-vasta, who abandoned his kingdom to become a Buddhist monk.

10. The religion of Gautama it is believed is destined to last five thousand years, (2398 of which have now passed) after which the Buddha A-ri-ma-té-ya will be developed.

11. *Htee*.—The iron net-work shaped like an umbrella which crowns a Burmese Pagoda.

12. The last sentence in the scroll is in the Pali language, and has been rendered to me in Burmese.



A slight notice of the Grammar of the Thadou or new Kookie language.—By Lieut. R. STEWART, 22nd Regt. B. N. I.

The people to whom the term Kookie is given by the inhabitants of the Eastern Frontier of Bengal, occupy, together with other tribes, the hilly tracts lying to the North, South and East of Cachar, and Manipoor: they are divided into numerous clans each under a petty hereditary chief or Rájáh.

The appellation of Kookie is unknown among themselves, and they have no title embracing their whole race, but they call one another by the names of their different clans.

They all speak the same language, with very slight modification in the dialects, and it is called among them Thadou Pao, from the name of one of their principal clans.

As there is no written character among the Kookies, the following Roman ones have been adopted by me, which appear to answer very fairly all the requirements of the language.

VOWELS.

a e i o u

CONSONANTS.

b c d f g h j k l m n p r s t v w y z

The vowels have a long and a short sound thus :—

á	as in father.	a	as in man.
é	there.	e	men.
í	police.	i	pin.
ó	note.	o	not.
ú	pull.	u	but.

oo as in moon, soon.

When two vowels come together each has its distinct sound, ai, as in *aisle*, ei, as in *míte*, ui, like *we*, &c.

The Consonants are pronounced as in English with the following modifications :—

C, is never used by itself, or in any other position except in combination with H, to express the sound, *ch* as in *Church*.

G, is always hard. H, is always aspirated.

J, has a sound much softer than in English, and resembling more that of the combination of the letters *zsh*. Ñ, is slightly nasal.

W and Y, have no vowel sound.

The compound consonants are—

Ch, pronounced as the *ch* in *Church*.

Gh, Persian غ *ghain*.

Gn, an intensely nasal sound.

Kh, pronounced as the Persian خ *khe*.

Ng, ng in “singing,” but when over-lined thus
ng, still more nasal.

Sh, pronounced as the Persian ش *shín*.

ARTICLES.

There is no article, definite or indefinite, in the language, the numeral *khut*, *one*, coming after the noun, sometimes stands in lieu of the indefinite article, and the demonstrative pronouns, *Hi*, *this*, and *Hú*, *that*, sometimes supply their place.

NOUNS.

Number is often left undistinguished, and is generally defined by means of numerals, thus—

Mí, <i>man</i> or <i>men</i> .	Míkhnt, <i>a man</i> .
Míthúm, <i>three men</i> .	Mítum, <i>many men</i> .

A plural form exists, however, though it is seldom used except in pronouns, and with reference to human beings, thus—

Mí, <i>man</i> .	Miho, <i>men</i> .
Númei, <i>woman</i> .	Númeiho, <i>women</i> .
Chapung, <i>child</i>	Chapungho, <i>children</i>

or

Mite, Númeite, Chapungte, *men, women and children*.

Gender is usually expressed by subjoining to the noun the words Chul, *male*, and Noo, *female*, some of the ruder Kookies, however, retain a more primitive mode of distinguishing the sex, and subjoin Jung, *penis*, and Shoo, *vulva*, instead, thus, Kel, *goat*.

Kéichnì or Kéljung, *a he goat*.

Kélnoo or Kelshoo, *a she goat*.

Some nouns expressive of individuals of the human family have distinct terms in both sexes, thus—

Pá, <i>father</i> .	Noo, <i>mother</i> .
Mi, <i>man</i> .	Númei, <i>woman</i> .
Pashnl, <i>son</i> .	Chanoo, <i>daughter</i> .
Jigñei, <i>husband</i> .	Jí, <i>wife</i> .

Pá, is also a sign of the masculine, and generally used with reference to trade or occupation, thus—

Ghálhátpa, <i>a warrior</i> .	Honsapa, <i>a king</i> .
Thúgñeipa, <i>a commander</i> .	Kélchingpa, <i>a herdsman</i> .

Case is not marked by inflection, but by the use of *post-positions*, thus—

Nominative, ..	Chem, <i>a dhao</i> .
Genitive,	Chem, <i>of a dhao</i> .
Dative,	Chem, <i>or Chemkhú, to a dhao</i> .
Accusative, . . .	Chem, <i>a dhao</i> .
Vocative,	Vó Chem! <i>Oh dhao</i> .
Ablative,	Chema, <i>or Chemhénga, from a dhao</i> .
Locative,	Chema, <i>or Chemshunga, in a dhao</i> .
Instrumental, ..	Chemin, <i>with a dhao</i> .

A noun in the genitive case precedes the substantive belonging to it, in juxta-position, as—

¹ Mi ² loo,	¹ A ² man's head.
¹ Ka ² pá ³ pón, ..	¹ My ² father's ³ clothes.
¹ Silat ² noi,	¹ Cow's ² milk.

The accusative precedes the verb in a sentence and is generally placed between it and the nominative, thus—

¹ I ² teach ³ the child,	¹ Kin ³ chapung ² kahile.
¹ He ² beats ³ his ⁴ son,	¹ Hipa ³ áma ⁴ pashul ² adéuge.
¹ I ² strike ³ the gong,	¹ Kin ³ dápi ² katúme.

The following examples mark the other cases—

¹ The ² elephant ³ eats ⁴ plantain leaves,	¹ Saipin ³ mót ⁴ ná ² ané.
¹ Give ² money ³ to the ⁴ poor men,....	¹ Mí ³ chughakhú ² danka ⁴ pétan.
¹ Oh ² faol! ³ why ⁴ dost thou fear, ..	¹ Vó ³ Miñgol! ⁴ ídínka ² nakichánem?
¹ I ² get ³ fruit from the tree,	³ Thingá (or thing ² hénka) ¹ thing ⁴ ga ³ kámúi.

¹ There ² are ³ large ⁴ plains in Cachar,	⁴ Hénghála ³ phai ² lín ¹ aúme.
¹ Kill ² the dog ³ with ⁴ your dhao, ..	³ Na ⁴ chém ² iu ¹ wícha nathútnin.

ADJECTIVES

are not inflected to express either number, gender or case. They are placed after the noun they qualify, thus—

¹ Ní ² dup,	² A ¹ cold ² day.	¹ Sakól ² jánge, ..	² A ¹ swift ² horse.
¹ In ² lín,	² A ¹ large ² house.	¹ Chém ² hém, ..	² A ¹ sharp ² dhao.

Adjectives admit of comparison by subjoining *dé* for the comparative, and *pén* for the superlative degree, as—

Asa, <i>hot</i> .	Atum, <i>much or many</i> .
Asadé, <i>hotter</i> .	Atumdé, <i>more</i> .
Asa pén, <i>hottest</i> .	Atum pén, <i>most</i> .

This method of comparison is however frequently rejected. "It is hotter to-day than it was yesterday" would be literally.

1 2 3 4 1 3 2 4
To-day, than yesterday, hot, Tooní jinga shángin asáe.

Pi, attached to some adjectives, and even nouns, signifies bulk or quantity, thus—

Alín, <i>large</i> .	Alín pí, <i>very large</i> .
Atum, <i>much</i> .	Atum pí, <i>very much</i> .
Mei púm, <i>a firelock</i> .	Mei púm pí, <i>cannon</i> .

Moreover all formidable animals have this affix to their names, as Húmpi, *a tiger*, Vompi, *a bear*, Saipi, *an elephant*.

Cha is in the same manner used to express a deficiency in adjectives and diminutiveness in nouns, as—

Neo, <i>small</i> .	Neocha, <i>very small</i> .
Nai, <i>near</i> .	Naicha, <i>very near</i> .
Kél, <i>a goat</i> .	Kelcha, <i>a little goat</i> .
Vá, <i>a bird</i> .	Vacha, <i>a little bird</i> .

The Kookie mode of numeration is a decimal one, and exceedingly simple—

1. Khut.	6. Goop.
2. Ní.	7. Suggi.
3. Thúm.	8. Gét.
4. Lí.	9. Kó.
5. Gna.	10. Sóm.

Sóm le khut, *i. e. ten and one* stands for *eleven*.

Sóm le ní, for *twelve* and so on.

20. Som ní.	25. Sóm ní legna.
30. Som thúm.	39. Sóm thúm le kó.
50. Som gná.	90. Sóm kó.
100. Za khut.	1000. Sháng khut.

There are no regular ordinals in the Kookie language. The word for first or foremost is Amusa, and the place of ordinals is thus supplied.

First, Amusa.

Second, Khutbána, *or, after one*.

Third, Nibána, *or, after two, &c. &c.*

PRONOUNS.

The personal pronouns are—

Kei, <i>I.</i>	Keihó, <i>We.</i>
Nung, <i>Thou.</i>	Nunghó, <i>Ye.</i>
Hipa, <i>He.</i>	} Hihó, <i>They.</i>
Hinoo, <i>She.</i>	
Hi, } <i>It.</i>	
A, }	

The third personal pronoun has however various forms—as, Hú Hihi, Húhú, Hichú, Húchú, all of which may signify persons or things either in the masculine, feminine or neuter gender; and the use of them depends upon the circumstances on which the person or thing has previously been alluded to, or upon their position while the speaker is speaking.

A curtailed form of pronoun, always accompanies, and precedes the verb (except in the future tense) independently of its nominative, this form is—Ka, *I* or *we*—Na, *thou* or *ye*, and A, *he, she, it, or they.*

Almost all nouns, and every adjective when used by itself, has prefixed to it this simple form of the 3rd personal pronoun, thus—

Apháe, <i>good, or it (is) good.</i>	Alíne, <i>large, or it (is) large.</i>
Alhá, <i>wing or its wing.</i>	Amei, <i>tail, or its tail.</i>

And in fact every noun having reference to beings, in either of the three persons, cannot stand alone, but must be preceded, either by the individual to whom it belongs, or by one of the personal pronouns. Thus Loo, the word for *head*, would be unintelligible to a Kookie, unless speaking definitely it were either

Shem hou loo, *Shem hou's head.*

Mi loo, *a man's head.*

Ka loo, *my head.*

Naloo, *thy head*, or indefinitely, Aloo, *his, her, or its head*—and in the same manner Pá, *father*, must stand either as Kapá, Napá, or Apá.

Pronouns are declined in the same manner as nouns, by means of *post-positions*. The Genitive case may be at pleasure in either of the following forms.

Keima, keia, kei or ka, *mine.*

Nungma, nunga, nung or na, *thine*.

Ama, or A, *his, hers, or its*.

An emphatic form of the pronoun is the same as the genitive, thus—

Keima, *I myself*.

Nungma, *thou thyself*.

Ama, *he himself*.

The first personal pronoun has a post position for the dative and accusative case peculiar to itself, thus—

¹He ²beat ³me, ¹Hipán ³kei ²ei dénge.

¹Let ²me see, or ²show ¹me, ²Kei ¹ei vét sain.

In other respects, the pronouns are declined exactly as nouns.

Certain verbs require a final n in their nominatives, and when the personal pronouns are subjected to this influence, they become,

Kin, *I*.

Keihón, *We*.

Nungin, *Thou*.

Nunghón, *Ye*.

Hipán, *He*.

Hihón, *They*.

The demonstrative pronouns are simply

Hi, *this*.

Hú, *that*.

sometimes the word is doubled to make the demonstration more palpable, as—

Hihi, *this*.

Húhú, *that*.

But it would seem that these pronouns admit of no plural.

The interrogative pronouns are Koi, which stands for *who* and *which*, and í *what*—one marked peculiarity in this language is, that wherever an interrogation is made, it is required that the clause or sentence in which it is contained, should end in a final M. This is effected by adding em, um, or simply m, to the verb which closes the sentence, thus—"It is a man," is simply Mi ahí, but

²Is ¹it a ¹man? becomes ¹Mi ²ahím?

and in the same manner

¹Where ²do ³you live?

²Nung ¹hoya ³naúmem?

¹Who ²gave ²this?

¹Koi ²mín ²apé em?

¹Why ²did ³you do ³this?

²Nung ¹ídinga ³nabólem?

¹ What ² does ³ he say?	² Hipán ¹ í ³ ashoiyem?
¹ Can ² you ³ speak ⁴ the ⁵ Manipoori lan- guage?	² Nung ⁴ Meitei ⁵ pao ³ nashoi ⁵ thei em?
¹ How ² far ³ is it to Cachar?	³ Hénghal ¹ íchun ² ghumlum?
¹ How ² many ³ days journey?	² Ni ¹ íját ³ lum hum?
¹ How ² many ³ houses are there in ⁴ your ⁵ village?	⁴ Nung ⁵ khóa ² in ¹ íját ³ úmum?
¹ What ² is ³ your ⁴ name?	³ Na ⁴ min ¹ í ² hum?
¹ When ² he ³ abused ⁴ you, ⁵ why (did you ⁶ not ⁷ come) ⁸ to ⁹ me, ¹⁰ and ⁹ I (would ¹⁰ have ⁹ punished ¹⁰ him) ⁹ myself?	¹ Ajou ³ na ² tum ⁴ pe ⁷ din, ⁸ íbóla ⁶ keima ⁵ henga ⁸ nahúngiem? ⁸ chule ⁹ keimán ¹⁰ aghinna ¹⁰ bólinge.

VERBS.

The expression of time in these can be traced to Past, Present, and Future, and the tenses of the two former even are but little understood, and are frequently used indiscriminately.

The imperative mood is the simplest form of the verb, and is obtained from the root (which is sometimes, but not always, used as a noun) by subjoining “in” or “tan,” as—

Húgin or húngtán, *come.*

Punin or puntán, *begin.*

Shélin or shéltán, *hide.*

But when the root ends in a vowel, the first form of imperative is obtained by elongating that vowel and subjoining n alone, as—

Moon or mútan, *get.*

Lán or latán, *take.*

Vén or vetan, *see.*

Pén or petan, *give.*

or by the introduction of a consonant between the final vowel of the root, and the in, as

Thouvin or thoután, *awake.*

Theiyn or theitán, *be able.*

Láijin or laitán, *dig.*

Koiyn or koitán, *place.*

The consonants j, v and y alone are in use for this purpose, but there seems to be no rule as a guide in the adoption of them.

When the root ends in p, an m is introduced before the “in,” in the first form of the imperative, as

Shipmin or shiptán, *throw*. Chepmin or cheptán, *smoke*.

Shútópmin or shútóptán, *dip*. Kupmin or kuptan, *weep*.

The pronoun na, *thou*, is almost invariably prefixed to the imperative, although it may be used without it. The imperative is only used in the 2nd person.

The present tense is formed from the root, by affixing an e—under the same provisions, as the formation of the first form of imperative, thus—

Kei kahúnge, *I come*.

Kei katunge, *I arrive*.

Kin kalájje, *I dig*.

Kin kathouve, *I awake*.

Kin kashipme, *I throw*.

Kei kakupme, *I weep*.

The past tense, for which however the present is frequently used, is formed from the root by adding ta or tai, as—

Kei katúng tai, *I arrived*.

Kin kapun tai, *I began*.

Kin kalái tai, *I digged*.

Kin kaship tai, *I threw*.

Another form of the past or present tense, for it is used as both, is obtained by subjoining nai to the root, as—

Kin kaue nai, *I eat*.

Kei katou nai, *I sit or sat*.

Kei kading nai, *I stand or stood*.

Kei kacho nai, *I sell or sold*.

A more distinct past tense is made by means of the verb Jouvin *accomplish*, used as an auxiliary, thus—

Kin kanejoutai, *I eat*.

Kin kachep joutai, *I smoked*.

the past tense of the auxiliary being subjoined to the root of the verb.

The past and present tenses of whatever form are subject to no modification in person or in number, as—

Kin kané, *I eat*.

Keihon kané, *we eat*.

Nungin nané, *thou eatest*.

Nunghón nané, *ye eat*.

Hipán ané, *He eats*.

Hihón ané, *they eat*.

The future tense is formed from either forms of the imperative, by subjoining ge for the first person of both numbers. The final n of the imperative and the g, being pronounced as the ng in singing, thus—

From Húngin or húngtán, *come*, Hunginge or hungtánga.

From Vén or vetán, *see*, Vénga or vetánga.

From Thouvin *or* thoutan, *awake*, Thouvinge *or* thoutange.

The future undergoes the following alterations with respect to the persons. It rejects the double pronoun, thus—

Kin dénginge, <i>I will strike.</i>	Keihón dénginge, <i>we will strike.</i>
Nungin dénginate, <i>thou wilt strike.</i>	Nunghón dénginate, <i>ye will strike.</i>
Hipán dénginte, <i>he will strike.</i>	Hihón denginte, <i>they will strike</i>

or

Kin déngtange.	Keihon déngtángo.
Nungin déngtánate.	Nunghón déngtánate.
Hipán déngtánte.	Hihón, déngtáute.

and so on with all verbs, as—

Moonge } Moonate } <i>will get.</i> Moonte }	Mútángo } Mútánate } <i>will get.</i> Mútánte }
Véngo } Vénate } <i>will see.</i> Vénte }	Vetángo } Vetánate } <i>will see.</i> Vetánte }
Shipminge } Shipminate } <i>will throw.</i> Shipminte }	Shiptángo } Shiptánate } <i>will throw.</i> Shiptánte }
Theiyinge } Theiyinate } <i>will be able.</i> Theiyinte }	Theitángo } Theitánate } <i>will be able.</i> Theitánte }

Another future tense, which has no distinctive meaning, is formed by subjoining nángo to the root, for the first person, thus—

Kei chenángo, <i>I will go,</i>	Kei hónvenango, <i>we will see.</i>
Nung chengnánate, <i>thou shalt go.</i>	Nunghón venanate, <i>ye will see.</i>
Hipán chenánte, <i>he will go.</i>	Hihón venánte, <i>they will see.</i>

The potential mood is made available by the use of the verb Theiyin, *be able*, as an auxiliary, thus—

Kei kachétheiye *or* kei che theiyinge, *I may or can go.*

and in the same manner by means of the other auxiliaries we have

Kei kache nóme, *I would go,* and

Kei chéphanángo, *I ought to go.*

The infinitive is formed from the root by adding na, as—

Déngna, <i>to strike.</i>	Chéna, <i>to go.</i>
Véna, <i>to see.</i>	Néna, <i>to eat.</i>

A more significant form of the infinitive has “ding” subjoined to the simpler form, as—

Venading, *to see.*

Nénading, *to eat.*

The present participle is the same as the imperative, and has very frequently the root prefixed to it, as—

Déngin or déngdéngin, *striking.*

The past participle is formed from the present or the imperative, by subjoining lung or ting, as—

Denginting, or denginlung, *Struck, or having struck.*

A negative form of the verb obtains throughout all the tenses, by the interpolation of hi, thus—

Déng hi in, *do not strike.*

Hung hi in, *do not come.*

Kin ka denghie, *I strike not.*

Kadentáhie, *I struck not.*

Kin deng hi inge, *I will not strike.*

Also by subjoining poi, to the root, for the present tense—

Kin kadéng poi, *I do not strike, and*

Kin kadéngta poi, *I did not strike.*

For the future, póngé is added to the root to express negation.

Kei ché póngé, *I will not strike.*

Nung che pónate, *thou wilt not strike.*

Hipa che pónte, *he will not strike.*

There is no word in the Thadou language with the simple signification of *no*, or *not*. The negative being only used in conjunction with the verb, as described above.

The only grammatical puzzle in the language is that certain verbs require a final *n*, in their nominatives. This is obtained by adding “in” to such nouns in the nominative case as end with a consonant, and by adding *n*, and prolonging the vowel when they do not. For this curious inflection, I have been able to discover no rule or reason, verbs both active and passive, transitive and intransitive appearing arbitrarily to admit of either the one form of nominative or the other. The Kookies themselves never hesitate in marking the distinction, but they have never been able to account for it to me; some sense of euphony, appreciable only to their ears, is the only likely conjecture I can arrive at.

The Copernican System of Astronomy among the Arabs.—By
A. SPRENGER, M. D.

Mons. Sedillot has, I believe, published some passages shewing that the Arabs were acquainted with the Copernican system of Astronomy, yet the following extract from the *Hikmat al'ayn* of Kátiby, (died A. D. 1272) will not be read without interest.

“Some philosophers fancy that the earth moves towards the east and that the rising of the celestial bodies in the east and their setting in the west is owing to this motion and not to the motion of the widest heavenly sphere which, they maintain to be at rest. This idea is wrong. I do not however advance as an argument against it that, if this was the case, a bird flying in the direction of the motion of the earth would not be able to keep up with it, because the motion of the earth would be much faster than that of a bird, inasmuch as it returns to its place in a day and a night. Such an argument is not conclusive, because it may be urged that the atmosphere which is close to the earth partakes of its motion as the ether partakes of the motion of the heavenly sphere. But I reject this theory because all terrestrial motions take place in a straight line and therefore we cannot admit that the earth should move in a circle.” (This is the theory of Aristotle: who says, that only the heavenly bodies have the most perfect of motions, the circular).

ومنهم من زعم انها تتحرك الى المشرق فظهر الكواكب في المشرق وخفاوها في المغرب لذلك لا لحركة الفلك الاعظم فانه ساكن فهو باطل لا لانه لو كان كذلك لما كان الطائر الذي حركته الى جهة حركتها يلحقها لكون حركة الارض اسرع من حركته لعودها الى الموضع الاول في اليوم بليلتها لان الملازمة ممنوعة لجواز ان الهواء المتصل بالارض يشايعها في حركتها كما يشايع الاثير الفلك بل لكونها ذات ميل مستقيم فيمتنع ان تتحرك على الاستدارة *

Examination of three specimens of Bengal Mineral Waters. By
HENRY PIDDINGTON, *Curator Museum Economic Geology.*

These waters have all been sent in much too small a quantity to enable me to make any very correct quantitative analysis, and above all we cannot from small quantities pronounce on the presence or absence of Iodine or Bromine to which in minute quantities, so many mineral waters are now known to owe their efficacy. For a perfectly satisfactory analysis we require at least $2\frac{1}{2}$ or 3 dozen quart bottles, which would give us 5 or 6 gallons of the water. The bottles should be perfectly clean and well rinsed out with the water of the spring before filling, and the corks (new ones) soaked in the water of the spring and well beaten in.

No. I.

Darjiling Mineral Water from the Minchu Spring,
from B. H. HODGSON, Esq., C. S.

Two bottles of this water reached me; one (A) was a dark green glass (English) and the other (B) a white French glass bottle. The cork of the first was a very bad one, but that of the second was excellent, and it had been so well corked, that it took the strength of two men to pull, one at the bottle and the other at the corkscrew, to open it. The water of the first bottle had evidently decomposed. That of the second though quite limpid when opened and re-corked (to take a small quantity of the water for testing) began in two or three days to grow turbid, and gradually threw down its iron, some of it cohering in fine flaky webs of a pale yellow colour (carbonate of the protoxide); and it took eight or ten days before it again became tolerably clear, in which time some of the deposit reddened considerably. When the whole was filtered it left a chocolate brown deposit on the filter.

1. The water of both bottles had a very slight smoky taste.
2. A yellowish tinge was perceptible in (A), which was also a little turbid.
3. The cork of (A) was blackened and there was a faint smell of sulphuretted hydrogen but perfectly distinct. In (B) the smell of

the sulphuretted hydrogen was very strong and marked. With so small a quantity, however, our analysis, as to quantity, is necessarily imperfect, neither can we pronounce on the presence or absence of Iodine and Bromine as above remarked. Mr. Hodgson will, I have no doubt, favour us with a larger supply, when these questions will be settled.

TESTS—for *Acids*.

Silver foil was discoloured,	Sulphuretted Hydrogen.
Litmus and Turmeric papers were not affected,	} No free Acid or Alkali.
Acetate of Lead,	
Mur. Barytes,	Carbonic Acid.
Nit Silver,	Sulphuric Acid.
Gold Leaf,	Trace of Muriatic Acid.
	No Nitrates.

Bases.

Mur. Platina,	No Potass.
Carbte. of Amm ^a . and Phosph ^h te. Soda,	No Magnesia.
Oxalate Ammonia and Sulphate of Soda,	No Lime.
Tincture Galls, alone nothing, but with	} Oxide Iron.
Lime water it shewed,	

As the water in both bottles had decomposed, it was useless to examine it for the quantity of the gaseous contents.

Twenty-two ounces of the water, (of B) carefully evaporated and the residue examined, gave as follows

	In 22 oz.	In an imperial gallon
	gr.	
Peroxide Iron,	1.15	6.74
Sulphur,	0.10	0.58
Saline matter, mostly Muriate and Car- bonate, Soda,	0.35	2.04

The water is thus a carbonated and sulphuretted chalybeate spring, containing its iron in the peculiar state in which it is found in the Bath waters.

It also greatly resembles one of the Harrowgate springs.

By the kindness of Mr. Grapel who brought down the water, I have been able to ascertain that the bottles must have been filled

about the end of October, and as the bottle (B) was opened in the beginning of February, this shews that in the cold weather the water may be preserved good, even in a white glass bottle* for three months, so that it may thus be sent at intervals to Calcutta for patients who cannot leave their employments; though in such cases of course, the great adjuvant, change of air, would be wanting. Mr. Hodgson requests me to add from the *Hurkaru* of the 2nd February, a notice of the virtues of these waters of which he is the author, and I insert it below.

“In a November number of the *Friend of India*, there appeared a brief note of the mineral springs of Darjiling. The short intervening period has sufficed, even at this, the empty season of the Sanatarium, to furnish two more cases strikingly confirmatory of the eminent remedial qualities of the Sikim medicinal waters. One of these cases was of hereditary gout of the worst type, and aggravated by chronic rheumatism, the other was a case of extreme debility and inertness of the vital functions, particularly the action of the liver, consequent on malarious fever. In the former case, there has been experienced wonderful relief from pain, such as had not been known by the patient for years, with as good a prospect of entire recovery as in such cases is possible.

“In the latter case the recovery has been as complete as it was rapid,—strength, appetite and energy returning with the quickest pace without the least aid from medicine, which indeed before the resort to the waters had been found to be of no further service.

“It seems important that the public should be made aware what a blessing is within the reach of all persons suffering from general debility and inertness of functional action, from gout, from rheumatism, even the most severe and long dated, from secondary syphilis, from glandular and cutaneous affections generally, and lastly from sores of a bad type and long standing, that have resisted the employment of internal and external pharmacopeial remedies. As already stated by the writer in the *Friend of India*, there are many of these springs in various parts of Sikim, the virtues of which

* The light would aid the decomposition, and green glass bottles would be always best.

have been long known to the natives, though only so recently tried by Europeans. But this one, so tried, has been preferred for its proximity and accessibility and sheltered site, the last being a material point with reference to the chief element of the curative process, or frequent bathing in the waters, at as high a temperature as the patient can endure.

“Minchu” is a compound word meaning in the language of the country “medicine-water,” and as the term is both euphonic and appropriate, it should be at once adopted as the designation of the Darjeeling baths.

“A gentleman here has made purchase of the ground and is erecting a temporary house of three apartments within a few yards of the spot where the mineral water issues from beneath a huge block of gneiss. A philanthropic gentleman of the station had previously erected a similar building for the accommodation of bathers; this building being now devoted entirely to the bath, consists of three rooms.

“The distance from Darjiling is about five miles by the very good road already constructed. The elevation as yet untested by barometer or boiling water may nevertheless be safely said, by reason of the vegetation proper to the spot and the temperature, to be about 3,500 to 4,000 feet above the sea, due allowance being made for the extra heat generated by the rocky soil, sheltered position and eastern aspect.

“The water, still unanalysed, is void of all sapid or sensible properties. It has no heat, no taste, no smell. But the deep dye of rusty red with which it speedily incrusts stone and wood, proves it to be full of iron. It is to be hoped that Dr. W. O’Shaughnessy on his way through Calcutta will find time for an analysis, which it is to be hoped we shall soon obtain. This wonderfully efficacious remedy for so many of the ills that flesh is heir to, is as mild as patent in its action. In the slighter cases of debility, deranged liver and what not, it suffices to drink the water at Darjeeling without the necessity of resort to the Minchu. But in more serious cases such resort is indispensable for the purpose of bathing. The waters may be drank cold or tepid, but for bathing it must be used heated, and as hot as the patient can bear, and as often, if he desire a very speedy cure. But such overhaste

is not good speed, unless the patient be naturally robust and not much weakened by his ailment.

“Thirty to forty baths usually suffice even in severe cases, and should more be deemed needful, it is thought better to suspend the use of them, after having taken so many, and to recur to the bathing after an interval of some weeks. The method of using the bath is borrowed entirely from the people of the country. A duct brings the water from its source to the bathing place, which is both bath-room and dwelling; and this arrangement is adopted to guard against cold, nor should it be much deviated from in any future arrangement, the precaution being of cardinal importance.

“Besides heating the water with red hot stones tossed into the bathing tub, the Lepchas use an infusion of the bark of a tree, the genus and species of which are yet to be determined. But the necessity of this addition to the inherent virtue of the element has already been in good measure disproved, so we will here close our notice of the medicinal waters or baths of Darjeeling, referring our reader also to the article in the *Friend of India* above adverted to.”

II.

*Mineral Water, from a spring walled in, at Kudjorah in Jessore,
from A. GROTE, Esq., C. S.*

This water is tasteless, or but very slightly saline.

It has no smell.

There was a little flaky yellowish brown deposit in the bottle, which was carbonate of iron.

TESTS—for *Acids*.

Silver Foil,	No Sulphuretted Hydrogen.
Litmus and Turmeric,	No free Acids.
Acet. Lead sol precepte.,	Carbonic Acid.
Mur. Barytes,	No Sulphuric Acid.
Nitrate Silver (plentiful,)	Muriatic Acid.
Gold Leaf test,	No Nitrate.

For *Bases*.

Mur. Platina,	No Potass.
Carbonate Ammonia and Phosphate Soda,	Magnesia.
Oxalate Ammonia and Sulphate Soda,	Lime.

Tinct Galls, alone, slightly turbid }
 with Lime Water, } Iron.

Forty-eight ounces of this water being evaporated gave a slightly coloured residuum and a considerable white crystalline sediment weighing in the whole 11 grains.

	In the 48 oz.	In one gal- lon.
Carbonate of Lime,	6.25	16.64
Protoxide of Iron,	0.64	1.70
Muriate and Carbonate Magnesia,	1.70	4.62
Saline matters Muriate and Carbonate of Soda,	2.00	5.33
Water and Loss,	0.41	
	<hr/> 11.00 <hr/>	<hr/> 28.29 <hr/>

The spring is thus a carbonated, calcareous and magnesian water, with a slight, though probably efficacious proportion of iron ; which is of course in the state of carbonate, and held in solution in the water.

III.

Mineral Water from Sosoneah, North of Hazareebagh, from W. H.

ELLIOTT, Esq., C. S., through Mr. GROTE.

I had three small pint bottles of this water, but the whole were very badly corked.

Examined by the same tests as the foregoing, the carbonic and muriatic acids only were found, and of the bases lime, iron and soda were present ; but the whole are in very small quantity, the total of the saline matter and sediment obtained by the evaporation of 24 oz. being 1.70 gr. ; so that we can only at present say, generally, of this water that it is a carbonated and slightly chalybeate spring, with a little muriate and carbonate of soda also in solution. Nevertheless when a larger quantity in proper preservation can be obtained, it should be re-examined for Iodine and Bromine as above remarked. I add to this paper, a circular from the Medical Board with which I have been favoured by Dr. Macpherson, which give excellent directions for collecting mineral waters for analysis, and a list of many springs of which we know nothing and now that com-

munication in India is a little less tardy than a sea voyage of old, it is to be hoped that some of them like the Minchu spring may prove of service to the cause of humanity.

APPENDIX.

Circular from the Medical Board.

SIR,—The Supreme Government having resolved on a systematic examination of all the mineral springs in India, you are directed to call the attention of the medical officers in your circle to the subject, and to request them to ascertain whether there are any springs of real or supposed medicinal virtues in their districts, and to send specimens of them to the Presidency for analysis. The Supreme Government will request the Civil authorities to co-operate.

2. Annexed are a few simple directions for the collection and transmission of waters, and a list of some of the springs which have been noticed in various parts of India, including those which are believed to exist in your circle.

I have the honor to be,

Sir,

Your most obedient servant,

* * * *

Surgeon,

Secretary, Medical Board.

Fort William,
Medical Board Office, 185. }

Directions for the collection and transmission of Mineral Waters.

1. The mineral waters should be bottled in fine dry weather, and for gaseous waters the morning is best.

2. Particulars should be sent of the quantity of water furnished by the spring, whether it is constant or remits, of its temperature, whether varying at different times, the nature of the soil or of the rocks, from which it issues, the supposed elevation above the level of the sea, whether the spring contains bubbles of any gas, whether any particular *confervæ* are found growing near it, and whether the spring deposits any sediment.

3. Four quart bottles of each water will be the quantity usually required, the bottles to be of common black glass, perfectly clean ; the corks if possible new, and it is well to steep them for a few days in the water of the spring ; the corks to fit accurately, and to be secured with dammer and string, in the usual way in which beer is bottled in this country, placed in a box with four divisions ; and packed with tow.

4. With sulphurous waters it is particularly necessary, that the bottle be quite full ; acidulous, alkaline and gaseous waters may be exposed to the air for an instant, before being corked, and it is especially necessary to be careful in tying down the corks of such.

5. Specimens of any confervæ about the well or of any deposits from it, as well as of the rocks in the neighbourhood, should also be sent.

6. A notice should accompany, stating whether the natives of the country believe in its medicinal power, and in what diseases they count it useful.

7. There should be no delay in transmitting the waters, which should be sent by dâk bangy to the address of the Secretary, Medical Board.

8. When Medical or other officers on the spot are able to afford any chemical information respecting the waters, or are for instance able to observe whether the mineral ingredients are constant in quantity, they are requested to communicate it.—Especially in cases of gaseous waters, such as those containing Carbonic Acid or Sulphuretted Hydrogen, it is very desirable that they should endeavour to determine the quantity of gas present.

9. Information is wanted as to the accessibility of the spring, and healthiness or otherwise of the neighbourhood.

Hot springs in Martaban and Tenasserim, Pegu } Suptg. Surgn. Pegu.
Petroleum springs in Pegu, }

Petroleum springs, Arracan and Assam, Seeta- } Dacca.
coond near Chittagong,..... }

Uter 30 miles from Pooree, }
Hot springs near Chauneh in Bancoorah, ... } } Barrackpoor.
Ditto ditto Sooree, }
Ditto ditto Rajmehal Hills, ... }

Hot springs near Chauneh at Singoorjah,	}	
Ditto at Pinarkoon,		
Ditto at Kutkumsandee,		
At Mujoollee 30 miles S. E. of Rhotas,		
2 Springs in Hills N. E. of Gya,	}	Dinapore.
4 Sulphuretted springs within 27 miles of		
Hazareebaugh,		
Burkutta G. T. road,		
Seetacoond Moonghyr,	}	
Many hot springs in same range,		
2 Springs on Runjeet river Darjeeling,		
Springs at Landour,		
Any ditto in Kemaon ?	}	Meerut.
Well of Sonah near Delhie,		
Sulphurous spring at Gwalior,		Gwalior.
Many mineral springs at Macheny in Jeypore,	}	Agra.
Hot springs in Alwar,		
Hot and cold springs at Seetabaree in Harrowtee,		
Soda springs in Rajpootana,		
Hot springs at Jumnootrie, Gungotrie,	}	Umballa.
Kedarnath and Budinath in Ghurwal valley		
of the Sutlej,		
Chalybeate at Nagconda,		
Muneeekarn,	}	Lahore.
Bishihst,		
Saline spring at Dreva near Shapore,		
Sulphur ditto at Lonsah near Noorpore,		
Chalybeate at Dalhousie Chumba,		
Iodine and Brine near Juwalli Mukki,		
At Mukhdoor Rusheed 14 miles from Mooltan, ...		Sealkote.
Saline springs in Salt Range,		Peshawur.

Bombay.

Hot fountain in Kattywar.

Also Saline and Sulphur springs within high water mark.

Sulphurous well near Somnath.

Saline springs in the Concan.

Saline and Sulphurous springs in Lukeepass, } Scinde.
Many hot springs on Western boundary,

Madras.

Ramandroog hills near Bellary.

Chalybeate at Bungalore.

Sulphuretted hot springs at Bradachellum on the Godavery.

Hot springs at Rair and Urjunah and at Byorah in the Deccan.

Notes on Alfred von Kremer's edition of Wáqidy's Campaigns.—By
Dr. A. SPRENGER.

(SECOND NOTICE.)

I possess an Arabic MS. which has the title of *Jamharat al-'Arab* and contains seven times seven ancient poems (the first seven being the *Mo'-allaqát*) and also episodes from the early history of the Arabs in a poetical garb.

The first episode is the story of Barráq (Persian authors call him *Majnún*) and *Laylà*. She was the youngest and handsomest daughter of an Arab chief and had two sisters. The eldest of them *So'dà* was married to *Tha'labah*, the *Lame*, king of *Petra*, and the second to *Shabyb*, a chief of the *Tay* Arabs. Barráq, the hero of the story, fell in love with the youngest.

When Barráq was young he used to go out to the pasture grounds, milk the camels and carry the milk to a Christian hermit, who instructed him in reading the gospel, for our hero was a Christian.

He had hardly attained the age of twenty-five when the celebrated war broke out between the Arab tribes of *Mesopotamia* and the *Syrian desert*, and afforded Barráq an opportunity of giving proofs of his bravery. Without following the original in the historical details of this war, I content myself with saying, that he surpassed all other warriors in courage and obtained the title of *Father of Victory*.

Ibn Náfi' who tells us the story next introduces specimens of the liberality and generosity of his hero. Some *'Adwán* families were in debt and they sent to Barráq to solicit his assistance. He gave them all his own camels, and as they were not sufficient to extricate them from their difficulties, he gave them also those of his father and of his brother. The former reproved him for his prodigality, but the strain in which he extolled the merits of liberality not only moved his father to similar feelings, but it induced the *Tay* tribe to give to the needy *'Adwánities* more than double as much as they required.

Lokayz, the father of *Laylà* was a friend of *'Amr b. Morrah*, the *Laird of Çahbán*, and used now and then to spend a few days in his

castle. The beauty and soft feminine character of Laylà had become known all over the desert, and were the theme of conversation among the Arabian chiefs. One day as Lokayz was staying with the Laird, he demanded his daughter in marriage. Lokayz had not the courage to refuse him, but he did not give him a promise.

The rivalry of these two lovers is the plot of the story which throughout is with great art connected with the political history of the time to heighten its interest. It is not my intention to give the outline of it, but I wish to call the attention of the reader to the method of treating the subject, which is peculiar to the Arabs and constitutes their epos. The narrative is in prose, whose only charm is its great simplicity, and it forms only a small proportion of the work. The greater part of the story consists of speeches, disputations, and monologues, which are all in verse and not without poetical beauty. They are always dignified and contain noble passions, and much wisdom.

Compositions of this description seem at all times to have been popular among the Arabs. The earliest and most beautiful specimen is the book of Job. It consists almost entirely of speeches, which are highly poetical. One of the productions, which up to this day are popular at Damascus is the *Dywán Bany Hilál*, which consists chiefly of poetical monologues and disputations.

The first century after the conquests of the Arabs was the most poetical age recorded in oriental history. Savages, with great natural talents, were the masters of the fairest countries in the world. The luxuries of civilized life have a great charm which they could not resist. They lived in great ease in the cities of Syria, Egypt and Persia, their only occupation being the exercise of arms and the defence of the country. The wealthy ryots were the slaves of the Musalmán community and had to support them. As these barbarians advanced in civilization they looked back with pride and veneration on the simple manners and exalted heroism of their fathers. Refinement and luxury deprived them of the energy to imitate their example but they filled them with a taste for what is beautiful and great. The traditions regarding the original condition and exploits of their ancestors assumed therefore more and more an ideal character; and a poetical light was poured over the history

of Arabia and of the origin of the Islám, and like the heroes of olden times, the actors were endowed with every quality which they considered noble. It was during this age that the genealogies of the Arabic tribes were invented or constructed out of ethnographical materials and that most of the poems ascribed to the time of paganism were made. Poetry was in those days the vehicle of public opinion, and exercised the same influence on politics which in our days is exercised by newspapers.

One of the most favorite themes of the poets of those days seems to have been the history, not only of Arabia but also the sacred history and all history which had reached them. It does not appear that they made many alterations, the shape in which it reached them being fabulous enough for all purposes, but they filled it with poetical effusions. The early Arabic historians quote seriously elegies which Adam recited on the death of Abel, hymns which Noah chanted in descending from the ark, and songs which Kayumorth recited on ascending the throne.

Up to this day we have two sets of works on the life of Moḥammad. The one professes to be historical, and it would be profanation to read a work like Ibn Hishám in a coffee-house. The other set of works is legendary, and intended to be read before meetings in the month of Raby' I. and such books are frequently related for edification and amusement in coffee-houses by paid story-tellers. These legendary biographies of Moḥammad are usually called Moled مولد, because they contain more particularly the birth of the prophet. The most celebrated Moled is that of Bakry, who wrote in 763.

It is but natural that the history of the prophet should have occupied the historical poets or poetical historians of the first century more than any other episode of the history of our race. And much that was legend in the first century was regarded as history in the second, although the difference between history and legend was even then carefully kept in view.

In referring to Ibn Ishák, d. 151, we find that his biography of the prophet contains a great deal that has the character of what I called above the epos of the Arabs. Thus in page 106, he gives an account of the death of 'Abd al-Mottalib, the grandfather and guardian of the prophet, and he relates that he sent for his six

daughters, and said to them: I am dying, but I should like to hear in my last moments how you express your grief on my death. Each of them repeated improviso an elegy which Ibn Ishák has preserved.

This scene and the manner in which it is treated mark the peculiarity of what I call the Epos of the Arabs. Their poets delight to view an important or touching occurrence from all its sides, and in order to make this kind of moralizing less tedious, they put the expression of their sentiments into the mouths of persons, who were most concerned in it. Thus in the story of Barráq and Laylà, the chiefs of the tribe, successively give their opinion to Lokayz on his intention of *selling* his daughter to a man of another tribe. And in the book of Job the story is subordinate to the speeches which contain the different views which people entertain on the changes of fortune. Similar remnants of the early poetical and legendary biography of the prophet are frequent in Ibn Ishák, and, if we only know what view to take of them, they are of great interest.

It would be a matter of great interest to ascertain the names of these poetical historians. Before attempting to identify them, it appears to be expedient to bring to the notice of the reader, some of the men who in the first century propagated the history of the prophet, true or false.

If we compare the oldest accounts we possess as those of Ibn Ishák, d. 151; of Abú Ishák 'Amr b. 'Abd Allah, d. 127 (quoted by Ibn Hibbán and Bokháry), of Ibn Aby Shaybah, d. 235; of Ibn 'Oqbah, d. 141 (quoted by Ibn Sayyid alnás), we find a very great resemblance in the division of the subject and even in the expression. If we follow up the authorities which these writers quote we find the further we go back the closer the various accounts approach, so that they appear to be different texts of the same original with trifling, but sometimes important and evidently intentional alterations, and also with some additions and omissions, I might quote numerous examples to prove this assertion, but they would take up several pages, and I therefore content myself with referring for an instance to my notes in this Journal, Vol. 21 p. 576 on Bahyrah's journey to Makkah.

The natural inference from these premises, seems to be that in

the first century the biography of the prophet had assumed a stereotype form, and that the earliest works which we have on it are copies of this stereotype biography. To suppose that a *written* record (beyond memoranda), has reached the authors whom we have just mentioned would be an assertion which cannot be proved. The similarity of the earliest accounts can be sufficiently accounted for by assuming that they all come from the same place, and from the same school, and that some eminent persons took the lead in that school.

During the first century of the Hijrah, the principal seat of learning was Madynah. Even during the second century, it was superior to any other city, though many learned men emigrated to Babylonia, which rose rapidly to importance.

About the year 100 of the Hijrah, there flourished a man at Madynah of the name of Shoraʿbyl b. Sa'd, who attained to great celebrity for his knowledge of the campaigns and life of the prophet in which, it was thought he surpassed all his contemporaries. He was a client of the *Hotamah*, an *Anṣār* family, and like other learned men, he was daily to be found in the great mosque of Madynah, ready to relate traditions of the prophet to any one who liked to listen to them. At the same time he was himself anxious to obtain new ones from his elders. Among those from whom he collected his information in his youth were the best informed contemporaries of the prophet, as Zayd b. Thábit who used to write down the revelations for the prophet and d. in 48 or after 50; Jábir b. 'Abd Allah, d. at Madynah after A. H. 70, aged 94; 'Abd Allah, a son of the Khalif 'Omar, d. 73; 'Abd Allah b. 'Abbás, d. at Táyif in 68, aged 71 years; Abú Sa'yd Khodry, d. 74, and Abú Horayrah, joined the prophet three years before his death and d. in A. H. 59. Though these men are mentioned among his shaykhs, on comparing dates we find that he was too young when they died, for him to have derived much information from them; the bulk of his historical knowledge he must have obtained from later authorities. He was unfortunately very poor, and tried to turn his celebrity to account. If a man made him a handsome present, he would assure him that his father or grandfather or some other member of his family fought in every campaign of the prophet and held a high place in his favour;

but woe to the ancestors of a man who did not pay! They never had distinguished themselves during the age of the prophet except perhaps in the ranks of his enemies. Owing to this description of industry he got a bad name among his own biographers. Towards the end of his life his faculties failed him, and he died at an advanced age in A. H. 123.

Among those who took traditions from him are, according to the Kamál:

1. Músà b. 'Oqbah, d. 141.
2. Ibn Ishák, d. 151.
3. Abú Ma'shar, d. 175.
4. Yakyà b. Sa'yd Ançary who was Qádhiy of Madynah and subsequently in the 'Iràq, where he died in 143. He was the most learned man of his age besides Zohry, Bokayr b. Ibn al-Ashajj and Abú-l-Zinnád. He had so faithful a memory that he used to dictate traditions to his pupils from memory, and if he subsequently rehearsed them, they found that he could repeat them literally as he had dictated them.
5. Ibn Aby Dzyb born in 80, died in 158.
6. 'Omárah b. 'Azyyah, d. 140.
7. Malik b. Anas, born in 93, d. 179.
8. Fitr b. Khalyfah, d. 155 or 153.
9. Moḥammad b. Ráshid, d. in 160 odd.
10. Ziyád b. Sa'd.
11. Abd al-Raḥmán b. Solaymán b. Ghasyl, d. 171.
12. 'Açim b. al-Aḥwal, d. 142.

The three first named pupils of Shorakhbyl, have left biographies of the prophet. The work of Ibn Ishák we have, that of Músà b. 'Oqbah is frequently quoted by Bokháry, Ibn Sayyid alnás, Sohayly, and Ibn Hajar and other writers, and it is very likely that a copy of it will yet be discovered. I made enquiries regarding this book wherever I went, and at Damascus I was assured that there existed a copy, but I was unable to obtain a sight of it. Abú Ma'shar we find also sometimes quoted but much less frequently. It appears to me that Shorakhbyl had a great hand in giving to the biography of Moḥammad, a stereotype form. Much had been done before him, more particularly by 'Orwah, Sa'yd b. Mosay-

yab and others, but in the first years after the Hijrah as long as eye-witnesses were alive, they would be chiefly consulted and it is not likely that they all would choose the same set phrases in relating what they had seen.

I do not mean to say that these three authors merely wrote down what they heard from Shorakhbyl, nor that he was the only man who had a hand in completing the stereotyping of the main parts of the biography of Moḥammad. As it has already been stated and will be further shown lower down, much has been done before him. And during his life time it must have been the subject of daily conversation in the mosque of Madynah. Still I am led to suppose that he took a great part in it and my reasons for this supposition are: 1. The testimony of Najjār and Dzohaby, who say that he was better versed in the biography of Moḥammad than any of his contemporaries. 2. The circumstance that three of his pupils left works on the subject. 3. The very silence of Ibn Ishāq. Though it is distinctly stated in the Kamāl that Ibn Ishāq obtained information from him, he nowhere quotes his authority by name; on the contrary there are some sentences preserved from him in which he expresses a very unfavorable opinion of his teacher.

The fact is, many parts of the stereotyped version were evidently not to the taste of Ibn Ishāq, and on perusing his book it gives us the idea that one of his objects in writing it, was to improve and critically to illustrate it. He therefore seldom mentions his authorities for those parts of the story which were generally believed to be true. Thus for instance he like Bokhāry and others takes the history of the Mi'rāj from Khodry, but he does not say through whom it has reached him. As Khodry is mentioned among the teachers of Shorakhbyl, it is not impossible that he was the medium of communication. Ibn Ishāq generally gives the authorities only where he has additions to make to the stereotyped and generally received versions, where he has more clearly ascertained a fact or where he suggests corrections. I will mention an instance. In p. 100 he relates that *Hassán* heard, when he was seven years of age, a Jew publicly proclaiming that a star had risen the preceding night announcing the birth of *Almad* (the Messiah). To throw light on this story, Ibn Ishāq enquired of the grandson of *Hassán* how old

he was, when the prophet came to Madynah, and was informed that he was sixty years old. It hence follows that he was just seven years of age when the prophet was born, and that therefore, there is no anachronism in the above statement. Similar instances in which he made enquiries from persons, who, owing to their family connection, must have been accurately acquainted with certain facts are frequent.

In the commencement of some chapters however, he gives an isnád which apparently refers to the main sources of the stereotype version. It runs at the heading of the battle of the ditch, حدثني يزيد بن رومان مولا آل الزبير عن عروة بن الزبير ومن لا اتم عن عبد الله بن كعب بن مالك ومحمد ابن كعب القرظي والزهرى وعاصم بن عمر بن قتادة وعبد الله بن ابي بكر وغيرهم

"I have been informed by Yazyd b. Rúmán, a client of the Zabayr family on the authority of 'Orwah, the son of Zobaýr, also by a person against whom I have no suspicion on the authority of 'Abd Allah b. Ka'b b. Málik and of Moḥammad b. Ka'b Qoratzy, and also by Zohry, by 'Açim b. 'Omar b. Qatádah and by 'Abd Allah b. Aby Bakr and others."

The battle of Badr is headed by the following isnád حدثني محمد بن مسلم الزهرى وعاصم بن عمر بن قتادة وعبد الله بن ابي بكر ويزيد بن رومان عن عروة بن الزبير وغيرهم من علمائنا عن ابن عباس

"I have been informed by Zohry and by 'Açim b. 'Omar aud by 'Abd Allah b. Aby Bakr and by Yazyd b. Rúmán on the authority of 'Orwah, and by others of our men of learning on the authority of Ibn 'Abbás."

At the head of the story of the campaign called Sawyq the isnád runs حدثني محمد بن جعفر بن الزبير ويزيد بن رومان ومن لا اتم عن عبد الله بن كعب بن مالك *

"I have been informed by Moḥammad, by Ja'far b. Zobaýr, aud by Yazyd b. Rúmán aud by a person against whom I have no suspicion on the authority of 'Abd Allah b. Ka'b b. Málik."

In the commencement of the campaign of the Banú Moçtaliq it runs حدثني عاصم بن عمر بن قتادة وعبد الله بن ابي بكر ومحمد بن يحيى بن جبار كل قد حدثني بعض حديث بني المصطلق *

"I have been informed by 'Açim b. 'Omar b. Qatádah aud by 'Abd Allah b. Aby Bakr and by Moḥammad b. Yaḥjà b. Jabbár.

Every one of these men related to me a portion of the story of the Banú Moçtaliq (and I completed one statement through the other)."

As authorities for his account of the Okod campaign, he mentions in addition to Zohry and Moḥammad b. Yahyá and 'Aḡim b. 'Omar also al-*Hoçayn* b. A'bd al-Rahmán b. 'Amr b. Sa'd b. Mo'ádz.

These isnáds give us the names of eight Shaykhs of Ibn Isháq and comparing them with other quotations strewed over the book, we find that from some of them he received an almost complete account of the life of the prophet. I will now give a short notice of the latter and with a view of tracing the sources regarding the biography of Moḥammad up to eye-witnesses, also of their authorities.

The first Shaykh mentioned is Yazyd b. Rúmán Abú Rûh of Mady-nah. He was a client of the Zobayr family and derived the greater part of his information on the biography of Moḥammad from 'Orwah the son of Zobayr. He was particularly strong in explaining the Qorân, having studied it under 'Abd Allah b. 'Abbás b. Raby'ah, who is to be distinguished from the famous Ibn 'Abbás. He died in 129 or 135. Ibn Isháq quotes him particularly often in his accounts of the campaigns but also in the first part, as pp. 221, 415, 417, 454, &c.

The Shaykhs most frequently quoted by Ibn Isháq were relations of 'Orwah b. Zobayr, and like Yazyd b. Rúmán, they derived most of their information from him. I will first name them and then give a short account of 'Orwah himself.

Moḥammad b. Ja'far b. Zobayr a nephew of 'Orwah is quoted in Vol. I. pp. 34, 327, 393, 456, Vol. II. pp. 95, 117, 180, 198 and *passim*.

Hishám a son of 'Orwah was born at Mady-nah. As long as he resided in his native town, he was considered a trustworthy teacher of traditions, but when he came into the 'Iráq he related many traditions on the authority of his father which he had received from him only second hand. He died in 145 or 146. Ibn Isháq introduces accounts which Hishám professed to have received from his father 'Orwah in Vol. I. pp. 143, 204, 403 and Vol II. p. 153.

'Omar, a son of the preceding. In Vol. I. p. 403, is an account which he had received from 'Orwah.

Yahyà, a son of 'Orwah is quoted in Vol. I. p. 201. He took

traditions from 'Orwah and also from 'Abd Allah b. 'Amr b. al-'Āḡ, Vol. I. p. 181.

Ḡálīh b. Kaysán, the friend of the Khalif 'Omar b. 'Abd al-'Azyz and the tutor of his children, is also quoted, but very rarely. He took traditions from Zohry, Vol. I. p. 153, and also from others Vol. II. p. 22. He died about ninety years of age after A. H. 140.

Zohry, whom I shall mention lower down, took most of his traditions from 'Orwah and his relations.

'Orwah b. al-Zobayr was born at Madynah in A. H. 23. His mother Ḡafyyah was an aunt of the prophet. His brother 'Abd Allah gained a large party and was proclaimed Khalif in Arabia, Egypt and Khorásán, but after he had maintained himself nine years in his lofty position, he was defeated by the lieutenant of the Omayyides and crucified at Makkah in A. H. 73. 'Orwah seems not to have meddled with politics, and he even spent the last days of his life at the Omayyide court at Damascus, where it became necessary to amputate one of his legs on account of a malignant ulcer. No man of that age had better opportunities to collect information regarding the history and tenets of the Islám than him, and he made the best use of them. He was one of the seven men who are called the great divines of Madynah, and his distinguished pupil Zohry said, that he found that he was an inexhaustible sea and was able to give an answer to any question that might be proposed to him. He wrote down the result of his enquiries and to judge from the quotations which occur in Ibn Ishák, Bokháry and Ibn Sa'd, the assertion of Hájy Khalyfah, No. 12464, that he has written a biography of Mohámmad, seems to be correct. But unfortunately the prejudice, that it was not proper to have any other book than the Qorân, induced him to efface all his writings.* He regretted it subsequently and took great pains to teach the numerous traditions with which his memory was stocked to his children and pupils, and they have preserved a great portion of his labours. He died in 94 A. H.

* Dzohaby says قال عروۃ كنا نقول لا نتخذ كتابا بعد كتاب الله ^{محوت} كتبي فوالله لو ددت ان كتبي عندي. The Khaṭyb Baghdády thinks that the reason why he repented to have destroyed his writings was, because when he got old, his memory got weak; but in our version he says his books would be very useful for his children.

Another Shaykh of Ibn Isháq whose name occurs in all but one of the above *isúads* is 'Abd Allah b. Aby Bakr b. Moḥammad b. *Hazm* Anḡary of Madýnah, who died in 130 or 135 at the age of seventy. His teacher was his own father, Abú Bakr whom the Khalif 'Omar b. 'Abd al-'Azyz (came to the throne in 99) appointed judge of Madynah, and to whom he sent orders to collect and write down traditions, more particularly those of his aunt 'Amrah, a daughter of 'Abd al-Raḥmán b. Sa'd b. Zorárah of the Anḡár and those of Qásim. When this order was given, 'Abd Allah was no longer a pupil, but a companion of his father, and no doubt assisted him in his labour. Hence it happens that he mostly quotes the same Shaykhs as his father. Abú Bakr died at the age of eighty-four in 117 or 120. Ibn Isháq takes in many instances the account of 'Abd Allah as the basis of his narrative, as in Vol. II. p. 135. In some instances 'Abd Allah does not state his authority as in Vol. I. pp. 287, 295, 296, 427, 434, 449, 451, 454; Vol. II. pp. 131, 133, 135, 187, 191 and *passim*. He quotes his father in Vol. I. p. 48. He quotes 'Amrah Vol. I. pp. 52, 105, and Vol. II. p. 102. He quotes in several instances 'Othmán b. Aby Solaymán b. Jobayr from his uncle Náfi' b. Jobayr from his father Jobayr. He quotes Yaḥyà b. 'Abd Allah b. 'Abd al-Raḥmán b. A'sad (Sa'd?) b. Zorárah, Vol. I. p. 339. He quotes Ibn Abbás second hand Vol. I. pp. 435, 442. He quotes a man of the Bauú Sá'idah from Abú Osayd Málík b. Raby', who was present at the battle of Badr, Vol. I. p. 436. He quotes Omm 'Ysà, a lady of the Khozá'ah from Omm Ja'far, Vol. II. p. 174, and he quotes several other authorities. 'Amrah, whom he and his father quote had collected a great many traditions from 'Ayishah and other wives of the prophet, and died in 106 or according to others as early as 98 at the age of seventy-seven.

'Aḡim b. 'Omar b. Qatádah was equally a native of Madynah, but during the reign of the pious 'Omar b. 'Abd al-'Azyz he came to Damascus and taught traditions in the great mosque. Subsequently he returned to his native town where he died in 120 or 129. Ibn Sa'd *apud* Dzohaby states, that he was particularly strong in the biography of the prophet, and Ibn Isháq quotes him almost in every chapter, as Vol. I. pp. 141, 283, 286, 295, 339, 366, 432; Vol. II. pp. 13, 17, 18, 19, 53, 94, 111 and *passim*. 'Aḡim, it would appear

taught the stereotype version, he therefore seldom quotes his authorities and only in cases where he deviates from it. Among the Shaykhs whom he quotes is Maḥmūd b. Labyd who died in 96 aged ninety-nine years. In his days, it was so common to preserve traditions in writing, that there is little doubt that he kept note books.

The anonymous Shaykh against whom Ibn Ishāq had no suspicion, and who derived his information from Moḥammad b. Ka'b Qoratzy and from 'Abd Allah b. Ka'b b. Málík (d. 97 or 98) seems to me to be Shorakbyl, of whom I have spoken above. Ibn Ishāq had apparently several informants, whom he does not think proper to mention. One of them took traditions from Miqsam, and Sohayly supposes that he is identical with Ḥasan b. 'Omárah. He is evidently a different man from the one alluded to in the above isnáds.

Moḥammad b. Ka'b Qoratzy of Madynah was the son of a converted Jew. He resided for some time at Kúfah, but returned to his native town, where he died in 108, or 117 or 120 by the fall of the roof of the mosque, whilst he was engaged in literary discussions with his learned friends. He was particularly strong in the explanation of the Qorân. His authority for traditions on the life of Moḥammad is not only quoted by the anonymous Shaykh but also by Yazyd b. Ziyád *apud* Ibn Ishāq, Vol. I. pp. 184, 320, 276; Vol. II. p. 85 and *passim*. He is also quoted by Boraydah, (*apud* Ibn Ishāq Vol. II. p. 25) who had received his traditions through Sofyán Aslamy. The name of Moḥammad b. Ka'b also frequently occurs in Ibn Sa'd's isnáds.

At length I come to Moḥammad b. Moslim Zohry, who is also called Ibn Shibáb. He is one of the most remarkable men in the literary history of the Islám, and with him closes the first period of the Moḥammadan church history. He was a native of Madynah and a soldier by profession. He spent part of his life at the court of the Khalif 'Abd al-Málík, at Damascus, and was the tutor of Hishám's children, who at one time owed him seven thousand dynars on that account. He was very rich and liberal, nay extravagant. On one occasion a friend reminded him of his debts, which amounted to twenty thousand dynars, and he answered, I possess five springs, every one of which is worth double that sum.

Zohry had so retentive a memory that he learned the Qorân by-heart in eighty days. Being passionately fond of honey he

ascribed to it the property of improving the memory. He was anxious to obtain the best information and spent several years in the company of Ibn Mosayyab (died shortly after A. H. 90) who was then one of the most celebrated traditionists and theologians. He was particularly anxious to obtain information on the origin of the Islám from the descendants of the Refugees and Añçar, but did not neglect to consult their freed slaves and other hangers-on (موالي). Zohry like some other men of his age thought it objectionable to write down traditions, but gradually this practice became universal and he gave up this prejudice.* Abú Zinnád (d. in 131, aged sixty-six years) relates that he used sometimes to accompany him in his walks, and wherever he went he took tablets and a note-book with him, and wrote down whatever he heard. Qáliz b. Kaysán (died about 140) was a fellow-student of his, and as they were consulting with each other on the best method of study, they agreed to take down traditions and they both wrote all the sayings of the prophet which they could gather, subsequently Zohry proposed to take down also the sayings of his companions bearing on dogmas, but on this point they differed. Qáliz did not consider them as decisive in law, but Zohry did, and wrote them down. 'Obayd Allah b. 'Omar relates of him that they saw him giving a book of traditions to his pupils, telling them, that they might propagate the contents thereof on his authority. On one occasion he mentioned to Málík a very long tradition, and as he could not remember it he requested him to repeat it, but instead of repeating it, he wrote it down for him. The amount of traditions, poems and other information which Zohry taught was very great, and when al-Walyd moved he found that the books (دفاتر, now this term is used for account or office-books) containing what Zohry had taught made several loads for beasts of burden.

To illustrate the light in which writing was viewed even in the commencement of the second century, I may mention that Sofyán Thawry, died 161, received some traditions from Zohry in writing,

* Ma'mar apud Ibn Sa'd folio 178 and Dzohaby. The tradition does not run alike in both authors, one reads amr, where the other reads omará, and they alter the other words accordingly, but the sense which I give in the text, results from both readings. I shall give the version, which we find in Ibn Sa'd and the Khatyh Baghdády in another article in the original.

and because they were not at the same time communicated to him verbally, he did not avail himself of them. But Sofyán Thawry was altogether a very eccentric man. Al-A'raj (d. in 117) who used to copy the Qorân was induced by Zohry also to write down traditions, but as soon as he had learned them by-heart he tore them up (مزق الرقعة). The great boast in those days was, to know as many traditions by-heart as possible. From the earliest time however, they assisted memory by keeping notes. This we are told was done by Zayd and Ziyád. In 'Abd al-Haqq Dehlawy's *Madárij*, Vol. II. p. 284, occurs a very important passage bearing on this subject, which is taken from the Mawáhib, Vol. I. p. 304, "Wáqidy states, giving his isnád up to 'Ikrimah (a client and a pupil of Ibn 'Abbás, d. in 107), that he ('Ikrimah) said, I found the following letter among the books (كتب) of Ibn Abbás (was born three years before the Hijrah and died in 68) after his death, and I copied it."

But these notes were only intended to be used privately on the sly, for they were almost ashamed to be obliged to have recourse to them, and they were seldom arranged and not intended to be propagated by the process of transcription only. But genealogies and lists of names, it seems, were made use of without reserve even by the most prejudiced and conceited. It is related of Zohry that he used a genealogical table of his tribe and family.

Ibn Isháq sometimes says in quoting Zohry *حدثني الزهري* and sometimes *ذكر الزهري* (in Vol. I. pp. 149, 404 and *passim*. In page 130, he uses this expression also in reference to information received from 'Orwah, saying, *ذكر عروة*). They were rather strict in those days in distinguishing between the terms which they used to indicate the manner, in which they received a tradition, and writers on the canons of historical criticism hold that *ذكر* without the addition of *لي* or *لنا* does not imply that a man has *heard* the tradition from the shaykh quoted, or that he received it in any manner from himself; and I suspect, that wherever Ibn Isháq uses this term, he found a tradition in books or writings only, and perhaps second-hand. Even where he says *حدثني* it does not imply that he obtained it orally. He may have received it orally and in writing or in writing only, but from the informant himself.

Hájý Khalyfah, Halaby and others say that Zohry left a work on the biography of Mohámmad, and Sohaly several times quotes

it. There is no doubt that he collected an immense number of notes on the subject, and Ibn Iskháq refers to them in almost every chapter, but I doubt, whether he left them arranged and in the shape of a book on his death, and think that like the commentary on the *Qorân* ascribed to Ibn 'Abbás, they were collected and arranged by a later hand, perhaps by his nephew, *Mohammad b. 'Abd Allah b. Moslim*, who is quoted by *Wáqidy* in the first page as one of his *Shaykhs*.

Having said so much on the origin of writing down traditions, though it is my intention to enter into the subject at some length in a separate article, I may advert to a statement of Ibn *Hanbal*, recorded by *Ghazzály*, *Shahráshúb*, *Nawawy* and others. He says, the first man who composed books was Ibn *Jorayj* (d. in 150, it is said, at the age of one hundred years). If this is correct at all, he refers to systematic works on traditions or law. There is evidence to show that there existed Arabic works on profane subjects before his time. *Mas'údy* speaks of a public library at the time of 'Omar b. 'Abd al-'azyz, and I possess the history of Ibn *Monajjim*, who wrote in 131, and he quotes in pp. 68, 184 and 103, an older author whose name was *Ahmad b. 'Abd Allah Injly*. In page 103 he says, *وزعم الانجيلي في كتاب خشين عيلم ان رجلا الخ*. "Injly expresses an opinion in his work, which has the title of *Khashyn 'Aylam* that, &c." I do not know when *Injly* died, but from Ibn *Monajjim*, p. 184, it appears that he was a nephew and pupil of 'Abd Allah b. *Sallám*, of whom we find the following notice in the *Kamál* of 'Abd al-*Ghanyy*, "'Abd Allah b. *Sallám b. al-Háarith Khazrajy* was called *Abú Yúsof*, and was a confederate of the *Qawáqilah*, a family of the *Banú 'Awf b. Khazraj*. He was an Israelite of the tribe of *Joseph*, and embraced the *Islám* when *Mohammad* came to *Madynah*. The prophet changed his name which had been *Hoçayn* into 'Abd Allah, and promised him the paradise. To him alludes the verse of *Qorán*, 46, 9 (in which *Mohammad* refers to his testimony) and also verse 13, 43. But as to the bearing of the latter verse, the opinions of the commentators of the *Qorân* are divided. He was present with the *Khalyf 'Omar* at the conquest of *Jerusalem*, and died according to Ibn *Sa'd* at *Madynah* in 43."

Mas'údy mentions the work of *Injly* as well as that of Ibn

Monajjim among his authorities in the preface to the Golden Meadows.

Regarding the authorities on which Zohry's biography of Mohammad was founded, there occurs an interesting passage in Ibn Ishák, in the commencement of the account of the war against the Qoraytzah. He takes Zohry as his guide and copies the list of the authorities, from whose information Zohry had put together his story. They are, 'Alqamah b. Waqqác Laythy of Madynah (who died during the reign of 'Abd al-Málik b. Merwán), Say'd b. Jobayr (was put to death by Hajjáj in 95 before he had completed his 50th year of age), 'Orwah (mentioned above), 'Obayd Allah b. 'Abd Allah b. 'Otbah b. Saby'ah (d. in 94 or 84). From Bokháry, p. 573, we learn that Zohry related the adventure of 'Áyisháh on the authority of 'Orwah, Sa'yd b. Mosayyab, 'Alqamah b. Waqqác and 'Obayd Allah b. 'Abd Allah. Numerous other passages might be adduced, from which it appears that Zohry derived his knowledge of the main facts in the life of Mohammad from these five men. Among them he quotes most frequently 'Orwah (as *apud* Ibn Ishák, Vol. I. pp. 130, 415; Vol. II. pp. 130, 144 and *passim*, also *apud* Bokháry, pp. 2, 572, 573, 574 and times innumerable) and it seems that in his biography of the prophet, he restored the work of 'Orwah as far as he could recollect it from his lectures, and gather it from his other pupils, and that he enriched it, with additional information from a very great variety of authorities.

Ibn Ishák takes from Zohry the story of the adventure of 'Áyishah. The young lady accompanied her decrepid husband in one of the campaigns, and lost her way, but had the good luck to meet a young man who brought her back to the arms of her spouse. This story affords the best specimen of Zohry's manner of treating the subject, which is far from candid. The story being too long for being inserted here, I give 'Orwah's and Zohry's version of the expedition of Ibn Jaʿsh, which I related according to other authorities in a preceding number, p. 65, we see from it that these men were far too skilful theologists for being good historians.

"The prophet sent 'Abd Allah Ibn Jaʿsh b. Rayáb Asady on an expedition in Rajab immediately after the first Badr campaign, and he gave him eight men. They were refugees, and there was no

Anṣár among them. He wrote a letter for him and told him not to look into it before he had proceeded two days journey. Then he should read it and go to the place indicated in it, but that he was not to compel any of his men to accompany him. The men of Jaʿsh were: (see list *suprà*, p. 65 note). When Ibn Jaʿsh had advanced two days he opened the letter and read it, and he found in it what follows: 'When you have read this letter proceed as far as Nakhlah between Makkah and al-Táyif. Watch the movements of the Qorayshites and give me information.' When he had done reading it he said, I hear and obey, and then addressing his followers, he spoke: The prophet orders me to proceed to Nakhlah to watch the movements of the Qorayshites and to bring him the intelligence thereof, and he ordered me not to force any of you to accompany me. Let those of you who wish to earn the glory of martyrdom, accompany me, but those who have no inclination may return. As to myself I carry out the orders of the prophet. Having said so he proceeded, and they all went with him, not one of them remained behind. They went along the *Hijáz* road until they came to a Ma'dan above al-For', which is called Bahrán or Boʿráu. There a camel, which Sa'd and 'Otbah were riding in turn, went astray. They went in search of him and were left behind. Ibn Jaʿsh and his other followers proceeded until they reached Nakhlah. There a Qorayshite caravan passed them laden with raisins, leather and other articles, in which the Qorayshites used to trade. The persons in charge of the caravan were 'Amr b. al-*Hadhramy*, 'Othmán b. 'Abd Allah, his brother Nawfal and *Hakam* b. Kaysáu. When these men saw the party they were afraid; because they had encamped quite close to them. 'Okkashah, after he had his head shaved, showed himself to them, and they were put on their ease and said to each other, They are pilgrims, they will do us no harm. As this was the last of Rajab; the Moslims consulted among each other what to do, some said, If you do not attack them to-day they will slip into the sacred territory, where you cannot attack them, and if you do kill them, you kill them in the sacred month. They were doubtful what to do, and afraid to attack them. At last they took courage and agreed to kill as many of them as they could, and carry away the booty. Wáqid shot 'Amr with an arrow and killed him.

'Othman and Hakam gave themselves up as prisoners and Nawfal escaped. Ibn Jaksh and his followers went back with the two prisoners and the booty until they reached Madynah. Some one of the Jaksh family states, that Ibn Jaksh said, the prophet has a claim to one-fifth of the booty, and having set one-fifth aside he divided the rest among his followers. This was before the order regarding "the fifth" was revealed. Ibn Ishák observes, when they came to the prophet he said to them, I did not order you to fight in the sacred month, and he gave no orders regarding the prisoners and the booty, and did not accept any thing of it. When the prophet had thus spoken to them they were very much grieved, and afraid that their souls were lost, and their brethren severely reproached them. The Qorayshites said, Mohammad has abolished the sacred month [of Rajab] and his party sheds blood in it, makes prisoners and kills. The Moslims, who were at Makkah, answered them and maintained that the attack had taken place in Sha'bán. The Jews drew an evil omen for the prophet from the names (see p. 71 note) and said, God has turned this matter to his detriment and not to his advantage. As there was so much talk about the matter, God revealed the verses (see p. 68 *suprà*). This revelation cheered up the Moslims, and the prophet took now the booty and prisoners in hand. The Qorayshites sent men to ransom the two prisoners, but the prophet refused to give them up before his own two men, Sa'd and 'Otbah, who were missing had returned, saying, If you have killed them, I put your men to death. When Sa'd and 'Otbah had come back he took the ransom for them. Hakam embraced the Islám, and turned a sincere Moslim and remained with the prophet until he fell a martyr at Byr Ma'únah. 'Othmán returned to Makkah, and died there as a Káfir. When the first verse was revealed, which absolves Ibn Jaksh and his party from guilt, they came to the prophet and said, that they would now expect some reward from God for their exploit, and upon this the second verse was revealed, which they conceived, contains a promise of a reward. The account of this affair is taken from Zohry and from Yazyd b. Rúmán, who quotes 'Orwah as his authority."

In the original, the account is not without poetical merit, but it is far from genuine. I might quote a number of similar instances,

in which both 'Orwah and Zohry must have been in possession of more genuine information than the one which they communicate to their readers. Both 'Orwah and Zohry were great admirers of poetry. The former repeated after every tradition some national verses to mix the *utile* with the *dulce*, and perhaps also in explanation of the tradition, and the latter used to say, when he sat down to deliver his lectures, Now let us hear your traditions and the poetry, which you know. This leads us to suppose that not only many edifying legends but also a great part of the poetical history adverted to in the introduction to this article, owes its currency to these two men. For a long time I subscribed to the high opinion, which Bokháry, Moslims, and other authors entertain of these two men, but a deeper study of the sources caused me to alter it. I must bring here another Father of the Moslim church to the notice of the reader, who belongs to the same class. This is Sa'yd b. Mo-sayyab, who died shortly after A. H. 90. His son Mohámmad, who repeats only what he heard from his father, gave currency to the elegies of the daughters of Abú Tálib adverted to above. It is very likely, that these men are not the inventors of stories or poetry, but only preferred legends to true history. But to Anas b. Málik, who was ten years the servant of the prophet, and died in 92, upwards of one hundred years of age; Abú Horayrah, Ibn 'Abbás, and some other companions of the prophet, we must apply the very hardest epithets. There are stories of miracles attributed to them, which have been handed down by several independent isnáds, whereby the invention is brought home to them. And it cannot be said that they have been deceived, because Anas and also the others profess in many instances to have been eye-witnesses. As it is of great importance to know the character of the witnesses, I intend to embrace the first opportunity which I may have to publish the notes which I have collected on the inventors of miracles and of legends regarding Mohámmad. The literary history of those days deserves to be carefully investigated for its interest both as regards the biography of Mohámmad, and in regard to the development of his doctrines. Mr. W. Muir has lately published a very valuable pamphlet: "The testimony borne by the Qorân to the Jewish and Christian scriptures." From the passages which he collected, it appears that Mo-

hammad considered the scriptures as divine revelation. Whilst on the other hand from a number of incidents in his life, it is clear that neither he nor any of his early converts considered him unfallible unless he pretended to speak from inspiration. It was to be expected that the Musalmans would refer to the scripture for information on law and religion not contained in the Qorán. They followed quite the contrary course: they relied entirely on the accidental sayings of the prophet and even of his companions, and if the Bible were lost, and we had no other information regarding it than that contained in the theological writings of the Musalmans, we should hardly know that it ever existed. This tendency of the Moḥammadans, to separate themselves from Christianity and to supersede it is the leading fact of the Moḥammadan church history of the first two centuries during which the Islám received its present form.

There remains that I should say a few words on Músà b. 'Oqbah and Abú Ma'shar, who, as I have stated above, were pupils of Shorakbyl and left works on the biography of Moḥammad.

Músà b. 'Oqbah Asady was a client of the family of Zobayr or rather of Omm Khálid, who was either the mother or step-mother of 'Orwah. He was one of the learned men of Madynah. His two brothers, Moḥammad and Ibráhyim were also men of great erudition, and they all three when they sat in the mosque of Madynah, were surrounded by large circles of pupils. Sibṭ Ibn 'Ajamy puts him in his "Black-Book," which has the title of *Tabyyn biasmá al-modallisyn*, accusing him of Tadlys,* but it appears to me that he does not substantiate his charges. Ibn 'Oqbah's campaigns are

* Tadlys is of two kinds; first the Tadlys al-isnád: a man relates from a contemporary what he has not heard from him, but believes to have heard from him omitting the name of his real informant. Sometimes he does not omit the name of his Shaykh but of another witness, who is of weak authority or close to his own time, with a view to enhance the value of the tradition. Second, Tadlys al-shoyúkh: a man gives a name or *cognomen* to his Shaykh by which he is not known. Persous are frequently induced to commit the latter kind of Tadlys by a desire to make the reader believe that they have consulted a great number of authorities. Thus a man might say: "Zohry informed me" then "Ibn Shibáb informed me" then "Moḥammad b. Moslim informed me," meaning one and the same person, yet the reader would probably think three distinct authorities are quoted. Sometimes the intention is to disguise the name of a weak witness.

very highly spoken of. Soyúty says in his *درر المنثرة* as follows: *اما المغازي فكتب الواقدي قال الشافعي كذب وكتب ابن اسحق اكثرها عن اول الكتاب وليس فيها اصح من مغازي موسى بن عقبة*. "As to the works on the campaigns [and life of Mohammad] it has been observed by Sháfíy that the works of Wákidy are a tissue of lies. The beginning of the work of Ibn Isháq is equally for the greater part a lie. There exists no more correct book on the subject than that of Músà b. 'Oqbah." Málik's opinion of Ibn 'Oqbah's work is equally favorable. His words are "He was a trustworthy, good man and his work on the campaigns is good." Ibn Mo'yn says: *كتاب موسى بن عقبة عن الزهري من اصح هذه الكتب*. "The work of Músà b. 'Oqbah, who follows the authority of Zohry, is one of the most trustworthy books on this subject." It would appear from this that it was but a new edition of Zohry, which as I have said was but a new edition of 'Orwah. But some authors deny that he heard Zohry. This however, is contrary to Bokháry, p. 573. Ibn 'Oqbah was also instructed by 'Orwah himself, by 'Ikrimah, the client of Ibn 'Abbás, and generally speaking by the same class of men as Ibn Isháq. He died at Madynah in 141, ten years before Ibn Isháq.

Abú Ma'shar Najy^h b. 'Abd al-Raḥmán was a native of Sind, and a freed slave of a woman of the Makhzúm family. Some authors maintain that he was not a Sindian but a *Himyarite*. How he fell into slavery and gained his liberty is not mentioned. He lived at Madynah, but in 160 the Khalif Mahdiy visited that city and took him to the 'Iráq, allowing him an annual stipend of one thousand dynars. He attained a high age, but lost the use of his faculties before his death, which overtook him in 175. Imám Aḥmad put a high value on his work. Among his informants were Hishám, a son of 'Orwah, Moḥammad Ibn al-Monkadir, d. 131, and Sa'y^d b. Mosayyab, and he enjoyed the advantage of being instructed by Moḥammad b. Ka'b Qoraytzy himself, whereas Ibn Isháq received traditions from him second-hand only.

There were several other men, who during the first 150 years after the flight collected materials for the history of the prophet. Two of them, Abú Mijlaz and Abú Isháq are of peculiar interest, because they are not quoted by Ibn Isháq nor it would appear have

they been consulted by Ibn 'Oqbah and Abú Ma'shar, but nearly the whole of Ibn Hlibbân's biography of Mohamammad is taken from Abú Ishâq, and he as well as Abú Mijlaz are constantly quoted by Bokháry, Ibn Sa'd and Ibn Aby Shaybah (d. 235).

Abú Ishâq 'Amr b. 'Abd Allah Hamdány, was a soldier by profession and took part in several campaigns. His pay amounted to 300 dirhams a month, and according to another account, referring perhaps to a different time, to one thousand. He saw a great many companions of the prophet and among them 'Alyy, and recorded traditions from thirty-eight of them. His principal informant is Bará b. 'Ázib, who offered his services for the Badr campaign, but was rejected on account of his youth, and died in 72. We have details on every chapter of the biography of Mohamammad from Abú Ishâq, but in many instances though palpably fictitious they agree literally with those contained in Ibn Ishâq, though they rest on different authorities. Abú Ishâq attained the high age of ninety-nine years, and died in 127 or 128.

All the men whom I have hitherto mentioned were of Madynah, or at least belonged to the Madynah school, but Abú Mijlaz Láhiq b. Homayd Sodúsy was of Baçrah, and spent the greater part of his life in Persia. He came with Qotaybah b. Moslim to Marw and settled there, and it would appear that he was placed in charge of the public treasury and mint of Khorásán. He died between 100 and 109. Among his informants were Joudob b. 'Abd Allah, d. after A. H. 60, Hasan, the son of 'Alyy, Ibn Nohayk and others. His traditions are of greater importance for the life of Mohamammad than those of any other authority. They are numerous, and there is every reason to suppose that they have been taken down during his lifetime.

It was my intention to bring the history of the biography of Mohamammad down to the time of Wáqidy and his secretary, and to examine their authorities as well as those of the historical traditions contained in Ibn Aby Shaybah, d. 235, but this article already extends to such a length, that I must conclude my history with the year 140, after the death of Mohamammad. There is another subject which might have been of some interest, and that is the manner in which traditions were propagated in those days, and the canons of criticism which were in vogue.

Table of heights and distances along the proposed line of Railway from Surat to Agra.—Communicated by Sir R. HAMILTON, Bart. Agent to the Governor General for Central India.

Bombay, Baroda and Central India Railway.

Distance from Bombay in miles.	Name of place.	Height in feet above low water at Broach.
	Surat,	80
219.	Broach,	143
263.	Dubai,	145
334.	Rajpore Ali,	994
352.	Joneami Ghaut,	1,385
369.	Para,	1,325
387.	Tirla Ghaut,	1,850
419.	Dhar,	1,850
459.	Indore,	1,853
480.	Ragoogurh,	1,960
495.	Gola,	1,650
503.	Tuppa bari Ghaut,	1,788
507.	Tuppa Ghaut,	1,865
524.	Ashta,	1,620
548.	Camp of Sehor,	1,620
567.	Bhopal,	1,690
578.	Balrampoor Ghaut,	1,640
604.	Bhilsa,	1,406
636.	Oodeypoor,	1,336
698.	Budwur (on road from Lullutpoor to Chandeyree,)	1,250
715.	Betwa river (near Series Ghaut),	1,008
757.	Jhansi,	745
785.	South bank of Sind River,	640
806.	Antree pass,	960
817.	Gwalior,	670
849.	Chumbul river, flood level of,	458
884.	Agra,	565

April 4th, 1856.

A visit to the Rock-cut temples of Khandgiri.—By E. A. SAMUELLS, Esq. B. C. S., *Commissioner of Cuttack.*—*Communicated by the Government of Bengal.*

Cuttack, the 25th February, 1856.

To the Secretary to the Government of Bengal.

SIR,—I have just returned from a visit to the Rock-cut temples of Khandgiri in the Khas estate of Khoordah, and wish to draw the attention of the Lieutenant-Governor to the present state of these very interesting monuments of antiquity. A full account of them will be found in the text book which accompanies the illustrations of Fergusson's *Rock-cut temples of India*, (p. 10) in Sterling's *History of Orissa* (p. 149), and in the 6th and 7th Vols. of the *Journal of the Asiatic Society*. I need only mention here, that they are supposed by Fergusson to be, with one exception, the most ancient works of this class in India, and are deservedly objects of great interest to Indian Archæologists, and to all, indeed, for whom the combination of gigantic works of art with picturesque scenery has any charms.

2. I found the temples in very much the same state as that described by Fergusson, although, from the circumstance of there being only one or two byragees in the place at the time of my visit, I was more fortunate than he was in being able to penetrate every portion of the different caves, and to note accurately the extent to which injury to the sculptures had proceeded.

3. The friezes in the verandahs of the caves I found generally in very good preservation, though so begrimed with soot from the fires which the byragees have been in the habit of burning beneath them, that it requires a good light to make out all the details. The figures stand well out from the wall, and the judicious use of a brush with soap and water, would in the course of a few days restore them to their original beauty.

4. The life-size figures at the angles of the caves, have suffered more. The features of the very interesting figure in the cave called the "Thakoor Gumpha," which represents a man clothed in a kilt and socks or buskins, are completely destroyed, and the upper part

of the figure much injured. Most of the other large statues have suffered mutilation to a greater or less extent, and one very fine statue of a woman has been rendered indecent and otherwise disfigured.

5. The byragees and other religious mendicants, who from time to time take up their abodes in the caves, have built up many of the spaces between the pillars of the verandahs with wattle-and-dab walls, and have done their best to destroy the appearance of the place.

6. I have directed the magistrate of Pooree to take advantage of the absence of the byragees to have the whole of these walls removed, and all the rubbish and dirt collected about the caves swept out. The Bhobanessur Police have orders to take care that these nuisances are not renewed; and the Surburakar of Khandgiri, who seemed to feel ashamed of the state of the caves, promised that he would do his utmost to prevent the byragees from cooking in the verandahs in future, or doing any thing else which might tend to disfigure the sculptures.

7. It will probably be necessary, however, to station a burkundaz permanently at Khandgiri to protect the caves from injury, and I would suggest that one burkundaz should, for this purpose, be added to the establishment of the Bhobanessur Force. If the Lieutenant-Governor approves of this suggestion, a proposition statement in the usual form will be submitted.

8. Some small expenditure will also be necessary to cleanse the friezes and other sculptures, and to improve the steps leading from one cave to another, which at present are rather perilous. I think it probable that one hundred Rupees will cover the whole expense, and I would recommend that the magistrate of Pooree and the executive officer of the division should be authorized to expend that sum in cleansing the sculptures and repairing the steps and paths on the Udayagiri,* and if possible also on the Khundgiri hill.

I have, &c.

(Signed) E. A. SAMUELLS,
Commr. of Circuit.

* All the most interesting caves are on the Udayagiri hill.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR MARCH, 1856.

The Society met on the 5th inst. at half-past 8 P. M.

C. ALLEN, Esq. Sr. Member of the Council present, in the chair.

The minutes of the preceding month were read and confirmed.

Read a letter from W. Muir, Esq. Secretary to the Government, N. W. Provinces, announcing the despatch of four silver coins found near the foundation of an old house in Pergunnah Surgree.

The following gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected ordinary members.

Bábu Rájendralál Mittra.

J. F. Curtis, Esq.

Major R. R. W. Ellis, 23rd Regt. B. N. I.

The Council submitted reports—

1st. Announcing that they have appointed Bábu Gour Doss Bysáck Assistant Secretary and Librarian to the Society in the room of Bábu Rájendralál Mittra resigned.

2nd. Submitting a list of books required for the Library and requesting permission to devote a sum, not exceeding Rs. 600, to the purchase of them.

The reports were approved and the proposed expenditure sanctioned. Communications were received—

1. From Bábu Rádhánáth Sikdár, enclosing a register kept by Dr. Withecombe of the mean temperature and fall of rain at Darjiling, Sikkim, Himalaya, from 1848 to 1855.

2. From Mr. Assistant Secretary Carmichael, forwarding a Meteorological Register kept at the office of the Secretary to the Government of the N. W. Proviuces at Agra, for the month of Dec. last.

3. From Dr. Watson, Jessore, submitting the following memorandum on two hot springs in the village of Kujooráh.

"The accompanying bottles are filled with water taken from two springs situated in the village of Kujoorah, nine miles from the station of Jessore, in the direction of Magoorah. The springs are about forty yards apart, and so near the river Chutra, that the waters of that river undoubtedly flow over them during the rainy season.

"One of the springs is covered in with mats and surrounded with a low brick enclosure built by the former proprietor of the sugar-factory in that village; the factory is now out of repair and will soon become a ruin. The other spring is unprotected and open to the air. The temperature of both springs when I visited them at 7 A. M. on the 2nd February was 82° degrees Fahrenheit.

"The water of these springs has a disagreeable taste, as if slightly impregnated with ink, and on its course to the river, leaves a rust-coloured deposit upon the clay. The quantity of water furnished by the spring surrounded by a brick enclosure is 6 quarts in 12 seconds, or 450 gallons per hour; the volume of water supplied by the other spring, I was unable to determine.

"The natives make no use of the spring-water either for medicinal or domestic purposes. There are no wells in the neighbourhood, and the villages rely solely on the river for their supply.

"I have no doubt that the springs are, to a certain extent, chalybeate, and this circumstance occurring in the Delta of the Ganges is curious, and shews that the depth of alluvial deposit in Jessore is not so thick, as is generally supposed. I would therefore request the favour of the water being submitted to analytical examination. Dr. Palmer, the Civil Surgeon of Jessore, reported on these Kujoorah springs in December, 1854, to the magistrate of the district, but I have not heard that anything has resulted from his report."

4. From Col. Birch, Secretary to the Government of India in the Military Department forwarding a report by Mr. H. Schlagintweit on the progress of the Magnetic Survey in Sikkim and the Khosia hills.

The Librarian submitted his usual monthly report.

After the conclusion of the ordinary business of the evening Mr. H. Schlagintweit at the request of the chairman gave a short account of his operations during the last year in Sikkim and Assam and exhibited some fine panoramic views and other sketches made

by himself in different parts of the country through which he had lately travelled. He also presented to the Society a copy of a work by himself and his brother Adolphe on the physical geography and geology of the Alps.

On the motion of Mr. Allen, the best thanks of the Society were voted to Mons. H. Schlagintweit for the interesting details he had given.

LIBRARY.

The library has received the following accessions during the month of February last.

Presented.

The A'aras-i-Bozorgan, being an obituary of pious and learned Moslems from the beginning of Islam to the middle of the 12th century of the Hijrah, Edited by W. Nassau Lees, 8vo.—BY THE EDITOR.

Selections from the Records of Government, N. W. P. part XXIII.—BY GOVERNMENT OF THE N. W. P.

Selections from the Records of the Bengal Government, No. XXIII.—BY THE GOVERNMENT OF BENGAL.

Proceedings and Correspondence connected with the late Public Works Commission for the Madras Presidency, Madras, 1855, 8vo. pamphlet.—BY THE SAME.

Selections from the Records of the Madras Government, 1855, No. V. Report of the Annamullay Forests.—BY THE GOVERNMENT OF MADRAS.

Papers and Proceedings of the Royal Society of Van Diemen's Land, Vol. II. p. III.—BY THE SOCIETY.

Journal of the Statistical Society of London, Vol. XVIII. p. IV.—BY THE SOCIETY.

The Oriental Christian Spectator for January, 1856.—BY THE EDITOR.

The Calcutta Christian Observer, for February, 1856.—BY THE EDITORS.

The Oriental Baptist, No. 110.—BY THE EDITOR.

La Science pour Tous, No. 2.

The Upadeshak, No. 110.—BY THE EDITOR.

Report of the Calcutta Public Library, for 1855, 8vo. pamphlet.—BY THE CURATORS OF THE LIBRARY.

Exchanged.

The Athenæum, for November, 1855.

London, Edinburgh and Dublin Philosophical Magazine, No. 68.

Purchased.

L'Athenæum Français, Nos. 44 and 47.

The Literary Gazette, Nos. 2026 to 2030.

Revue des Deux Mondes, 15th November and 1st December.

Comptes Rendus, Nos. 18 to 23.

Journal des Savants, November, 1855.

The Edinburgh Review, No. 209 for January 1856.

The Quarterly Review, No. 194.

Annales des Sciences Naturelles, vol. III. No. 6.

Williams' Sanskrit Grammar, 8vo.

Bohlen's Ritusanhára, 8vo.

Williams's Vikramorvasí, 8vo.

Johnson's Selections from the Mahábhárata, 8vo.

RA'JENDRALA'L MITTRA.

1st March, 1856.

FOR APRIL, 1856.

At a monthly general meeting of the Society held on the 2nd inst. at the usual hour.

Sir JAMES COLVILLE, Kt. President in the chair.

The proceedings of the last meeting were read and confirmed.

Presentations were received,

1. From the Rev. S. Hislop of Nagpore, through the Rev. Dr. Duff, a collection of fossil shells from Central India.
2. From D. W. Mitchell, Esq. Secretary to the Zoological Society of London, the Transactions and proceedings of the Society.
3. From the Imperial Academy of Sciences, Vienna, the latest publications of the Academy.
4. From the Government of the N. W. Provinces through Capt. Maclagan, officiating Principal of the Thomason Civil Engineering College, a copy of the Report on prisons in the N. W. Provinces for the year of 1854.

The Council submitted reports,—

- 1st. Announcing that Capt. James having resigned his place in the Council, they have elected Dr. Sprenger subject to the confirmation of the next meeting a member of their body and Joint Secretary to the Society, and have added the name of Bábu Rájendralál Mittra to the Sub-Committees of Philology and Library.

2nd. Suggesting that the Society request the Right Hon'ble Viscount Canning to become the patron of the Society.

Resolved that a deputation, consisting of the President, Vice-Presidents and Secretary, wait upon his Lordship for the purpose.

3rd. Stating that in their opinion the present state of the Society's finances does not warrant the reduction of subscription proposed by Capt. Thuillier at the December meeting, and that such reduction would materially impair the efficiency of the Society, and submitting the following report drawn up by a special Sub-Committee appointed to take the subject into consideration.

REPORT.

"The Committee are of opinion that it is very desirable to reduce the amount of subscription, if it can be effected without bringing the Society into financial difficulties.

"There can be no doubt, however, that the immediate effect of a reduction would be a diminution of the annual income, since the accession of new members could only take place gradually. Unless therefore, the Society is prepared to diminish its annual expenditure or to make up the deficit in income from the small existing surplus, the reduction cannot be effected.

"A reduction of annual expenditure is, under present circumstances evidently impossible; and, in the face of the many calls for increased outlay, the Committee are of opinion that the other alternative is equally impracticable.

"In coming to this conclusion, the Committee have been mainly influenced by the state of the Museum, the constantly increasing claims of which demand the most serious consideration. There is a call, on the one hand for an increase of the Curator's salary and for providing more assistants, and on the other hand for additional space.

"In whatever way the Society may ultimately determine to dispose of some of these questions, the Committee presume that the necessity of maintaining in good order the specimens now in the Museum will be generally admitted. This, the Society is bound to do as trustee for the donors of many valuable collections, and they are equally bound as far as practicable to make these collections accessible to the public. But all the available space in the Society's apart-

ments being already most inconveniently overcrowded with specimens it will soon be absolutely necessary to deal with the question of extending the accommodation of the Museum.

“Your Committee are however of opinion that the support of a Museum on a scale commensurate with the requirements of science in the metropolis of British India is beyond the means of the Asiatic Society, or of any private association, and the Committee recommend to the Council’s consideration the propriety of drawing the attention of Government to the importance of establishing a public museum on a more extended scale, than it is possible for any private body to maintain.

“Such an institution has been established for a year past by the Madras Government, and a small additional grant has recently been provided for the support of a Zoological Garden in connection with it. On the establishment of a great public museum in Calcutta it would probably not be difficult to make arrangements for the transfer to it of the collection belonging to the Society on conditions consistent with the trust character of the property.

“The ordinary yearly charges of the Museum as shewn in last year’s report are as follow :

House rent to Curator,.....	Rs.	480	0	0
Establishment,		290	0	0
Petty charges including freight, purchase of stoppered bottles and printing,		503	0	0
		<hr/>		
Total,..		1,273	0	0
		<hr/>		

“Supposing that the Society, after consulting its absent members, should agree to adopt this suggestion, and that, on the negotiations with Government which would follow, an arrangement could be made to relieve ourselves of this charge, a reduction of subscription from Rs. 16 to Rs. 8 per quarter could be carried into effect without difficulty.”

(Signed) T. THOMSON.

T. BOYCOTT.

A. GROTE.

W. S. ATKINSON.

The subject of transferring the Museum of Natural History to Government gave rise to considerable discussion; it was ultimately proposed by Sir J. Colville and seconded by Dr. Thomson, that the consideration of the report be postponed to the next general meeting.

Dr. Walker moved as an amendment that the report of the special Committee be referred back to the Council for further information on the financial state of the Society.

The amendment was seconded by the Rev. K. M. B  nnerjee and carried.

Communications were received—

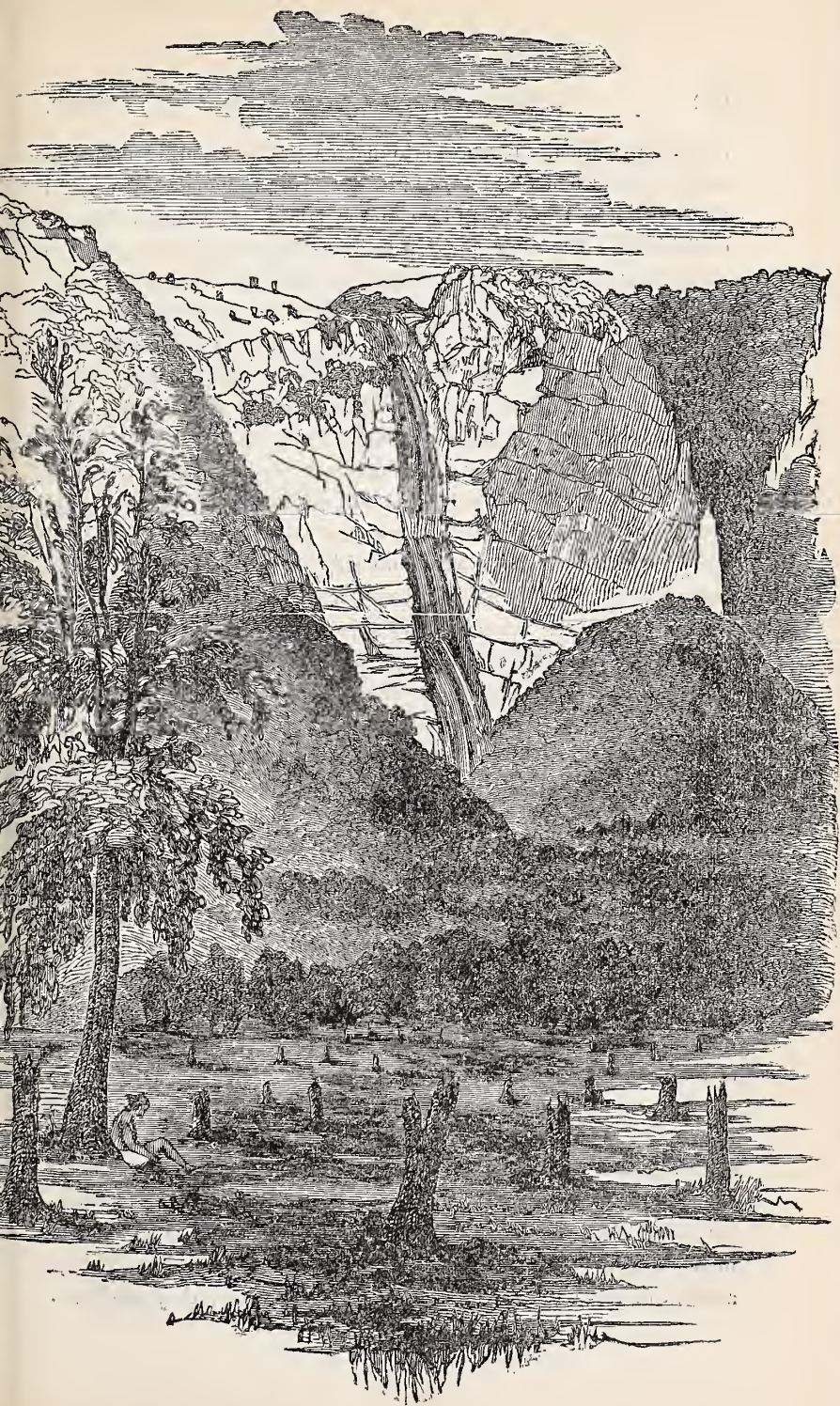
1. From Bab   Radh  nath Sikd  r, forwarding Abstracts of the Meteorological Observations taken at the Surveyor General's office in the months of November and December 1855, and January 1856.

2. From Lieut. R. Stewart, submitting a Meteorological Register kept at Apaloo, North Cachar, during October last.

3. From Capt. G. H. Saxton, Assistant Surveyor General, Cuttack, enclosing an account of a visit to a water-fall in the Bonai province of the South-west Frontier Agency with a drawing.

The account is as follows :—

“Whilst on Survey duty in the neighbourhood I received information of the existence of a water-fall from the hills on the South-east side of Bonai, a district, through the centre of which, the Brahmini river flows. My trigonometrical operations required that I should ascend the hills and fix a station thereon, somewhere beyond the falls, which were visible from my camp at the village of Kutigoan. Having made arrangements for my camp proceeding towards the East, Dr. Short, Lt. Depree, and myself, on the morning of the 17th January, started for the fall. After about an ordinary march, we had to leave our houses, and with a guide from a little hamlet in the dense jungle, we walked for some distance, by a path completely covered by jungle, when we came to a small opening which appeared to have been the site of a village. A number of jack fruit trees, and abundance of chilli plants, of great size (6 or 7 feet high), I suppose to result from former cultivation. From this spot, we had a beautiful view of the fall, and determined to remain for breakfast and observation. The accompanying sketch (or rather one in water colours from which this is made) by Lt. Depree, was taken



from this position. I was able to make a pretty accurate measurement of a base of 343 feet, and by observing the angle at each end (with a Sextant) to a small tree in the fall, I got a rough distance of 3,140 feet from our position to it. With this distance, and the measured angle subtended vertically, I made the depth of the fall, as it appears in the sketch, about 550 feet. Our position was West from the fall, which during the morning is entirely shaded by cliffs jutting out boldly on both North and South sides. In the afternoon, the shadow gradually withdraws, and the sparking and light make the scene much more splendid. Early in the afternoon we started for a nearer view. The pathless jungle and the nature of the ground, made this a tedious labour, but at last after a final ascent of a considerable height, we were rewarded with a beautiful sight. The position from which we enjoyed the view, immediately faced the fall at a very short distance, and about on a level with the bottom, where the stream changes from the nearly vertical smooth rock, to a rugged channel passing round the foot of the height on which we sat. The cliffs over which the stream falls are a mass of red jasper, and their bold formation and beautiful colour add grandeur to the scene. The rock is very nearly perpendicular, but the water at no part falls for any distance in an uninterrupted descent. In the present state of the country, its inaccessibility must exclude almost all, excepting my own party, from the pleasure we enjoyed; should any others have the opportunity, I would strongly recommend their visiting this fall. I have seen those of the Cauvery in Mysore, and though they are on a grander scale having the body of water of a large river instead of a small mountain stream, this may well be admired as equally lovely. We had to think of getting to our tents which were at the village of Jalandapani, on the other side of a small range of hills, so we retraced our steps to where our horses had been left and reached our tents about sunset. The following morning we ascended the hills to a little village, beautifully situated above the valley, through which the stream runs for some distance before reaching the cliffs. These hills (extending for 10 or 12 miles at about 3,500 feet elevation) and the neighbouring country are well worthy of notice, and I purpose writing a short account of them and some peculiar tribes by which they are inha-

bited. There is one tribe, which though the men wear a cloth as customary elsewhere, the women are in full costume, when, attired in two branches of leafy twigs and some necklaces.

"The waterfall is situated in N. Lat. $21^{\circ} 47'$ and E. Long. $85^{\circ} 10'$, with the town of Bonai (where the Rani, who governs the province, resides) about 11 miles off: a little North of West, on the bank of the Brahmini river, into which, about this place, the full stream runs."

4. From the Government of Bengal through Mr. Under-Secretary Morris, forwarding copy of a letter from E. A. Samuells, Esq. Commissioner of Cuttack, containing an account of a visit to the rock-cut temples of Khundgiri.

The Librarian submitted his usual monthly report.

LIBRARY.

The Library has received the following accessions during the month of March last.

Presented.

Address of Thomas Bell, Esq., read at the Anniversary Meeting of the Linnean Society, May 24th, 1855.—BY THE SOCIETY.

Transactions of the Linnean Society of London, vols. 6, 9, 12, 15, 19, 20 and 21.—BY THE LINNEAN SOCIETY OF LONDON.

Proceedings of the Linnean Society, for 1855.—BY THE SAME.

Du Buddhisme, par M. J. Barthlemy St.-Hilaire, Paris, 1855, 8vo.—BY THE AUTHOR.

Sitzungsberichte, der Kaiserlichen Akademie der Wissenschaften, Philosophisch-Historische classe Band XIV. Heft I. and II. and Band XV. Heft I.—BY THE ACADEMY.

Mathematisch-Natururssenschaftlich classe Band XIV. Heft. I. and Band XV. Heft I. and II.—BY THE SAME.

Archiv, für Kunde österreichischer geschichts-quellen, Band XIV. p. 1.—BY THE SAME.

Denkschriften, der kaiserlichen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftlich clause Band XIV. Heft I. and Band XV. Heft I. and II.—BY THE SAME.

Almanack, des Kais: ak-des Wixpenschaften (1855).—BY THE SAME.

Literaturgeschichte der árabes. By von Hammer Purgstall, sechoter Band Zwiete abtheilung.—BY THE AUTHOR.

Die Tertiärflora auf der Insel Java, Nach den entdeckungen des Herrn fr. Junghuhn beschrieben und érortert in ihrem verhältnisse Zur gesamomtflora der Tertiärperiode. von H. R. Göpperts' Gravenhage, 1854, Royal 4to.—BY THE AUTHOR.

Integration der linearen differential Gleichungen mit constanten und veränderlichen co-efficienten, von Dr. J. Petzval, 3rd part.—BY THE AUTHOR.

The White Yajur Veda, edited by Dr. A. Weber, part II. No. 67, Berlin, 1855.—BY THE EDITOR.

The Transactions of the Royal Irish Academy, vol. XXII. part V. 1855.—BY THE ACADEMY.

Proceedings of ditto for 1853-54, part I.—BY DITTO.

Journal of the Indian Archipelago, for September, 1854, 2 copies.—BY THE GOVERNMENT OF BENGAL.

Report of the Inspector General of Prisons, North-Western Provinces, for the year 1854.—BY THE GOVERNMENT OF THE N. W. PROVINCES.

Selections from the Records of the Government N. W. P. part XXIV.—BY THE SAME.

Ditto from the Ditto of the Government of India, No. X.—BY THE GOVERNMENT OF INDIA.

Notice des Biographies originales des arriteurs qui ont ecrit en Langue Indienne on Hindustanie, par M. Garcin de Tassy pamphlet.—BY THE AUTHOR.

The Quarterly Journal of the Geological Society, No. 44.—BY THE SOCIETY.

Bhôdjaprabandha Histoire de Bhôdjaroi de Malwa, en des Pandites de son temps Par Ballal, edited by T. Pavie, 4to.—BY THE EDITOR.

Transactions of the Zoological Society of London, vol. III. part II. vol. IV. p. I. II. III.—BY THE SOCIETY.

Proceedings of the Zoological Society, for 1848 to 1855.—BY THE SAME.

The Report of the British Association for the advancement of Science, for 1854.—BY THE ASSOCIATION.

Rig Veda Sanhita, a collection of Ancient Hindu Hymns constituting the second Ashtaka or Book of the Rig Veda, translated from the original Sanskrit, by H. H. Wilson, vol. II. London, 1854.—BY THE COURT OF DIRECTORS.

Archæologia; or Miscellaneous Tracts relating to antiquity, vol. xxxvi.—BY THE SOCIETY OF ANTIQUARIES, LONDON.

Proceedings of the Society of Antiquaries of London, No. 42.—BY THE SAME.

Journal of the Royal Asiatic Society of Great Britain and Ireland, vol. xv. p. 2.—BY THE SOCIETY.

La Vie et les aventures de Feriac relation di ses Voyages avec ses Observations Critiques sur les Arabes et sur les Antres peupler, Par F. E. Chidiat, Paris, 1855, 8vo.—BY THE EDITOR.

Proceedings of the Royal Society of London, No. 16.—BY THE SOCIETY.

Indische Studien Beiträge für die Kunde des indischen Alterthums, Dr. A. Weber, vol. III. parts II. III.—BY THE AUTHOR.

Memoirs of the American Academy of Arts and Sciences, vol. V. pt. I.—1853. Philadelphia.—BY THE ACADEMY.

Re-cueil des actes de l'Académie Impériale des Sciences, Belles-lettres et Arts De Bordeaux, (1854, 3e. trimestre).—BY THE ACADEMY.

The Oriental Christian Spectator, for February, 1856.—BY THE EDITOR.

The Calcutta Christian Observer, for March, 1856.—BY THE EDITORS.

The Oriental Baptist, for March, 1856.—BY THE EDITOR.

Kurze Sanskrit-Grammatik zum Gebrauch für Anfänger von Theodor Benfey, Leipzig, 1855.—BY THE EDITOR.

Proceedings of the Trevandrum Museum Society, pamphlet.—BY THE SOCIETY.

The Tuttwabodhini Patrika, No. 152.—BY THE TUTTWABODHINI SABHA.

Papers and Proceedings of the Royal Society of Van Dieman's Land, vol. II. p. III.—BY THE SOCIETY.

Exchanged.

The Philosophical Magazine, No. 65.

The Athenæum, for December, 1836.

Purchased.

The American Journal of Science and Arts, No. 60.

Wright's Analectes sur l'Histoire et sur Littérature des Arabes d'Espagne par A. Makhari, vol. I. p. I.

Comptes Rendus, Nos. 24—28.

Revue et Magasin de Zoologie, Nos. 10, 11.

Early Christianity in Arabia; an Historical Essay by T. Wright, London 1855, 8vo.

Specilegium Syriacum: containing remains of Bardeson Meleter Ambrose and Morabar Serapion, edited by the Rev. W. Cureton, London, 1855, 8vo.

Journal des Savants, for December, 1855.

A Glossary of Judicial and Revenue Terms and of Useful Words, accruing in official documents, relating to the Administration of the Government of British India, by H. H. Wilson, London, 1855, 4to.

Vikramorvasī: A Drama by Kālidāsa, edited by M. Williams, Hertford, 1849, 8vo.

Biblical Researches in Palestine, Mount Sinai and Arabia Petraea, a Journal of Travels in the year 1838, by E. Robinson and E. Smith, 3 vols.

Rig Veda ou Livre des Hymnes, traduit du Sanskrit par, M. Langlois, Paris, 1851, 4 vols. 4to.

. An Elementary Grammar of the Sanskrit Language, by M. Williams, London, 1846, 8vo.

A Dictionary of the Bengali Language with Bengali Synonymes and an English Interpretation,—By the Rev. W. Morton, Calcutta, 1828, 8vo.

Astley's Collection of Voyages and Travels, 4to. 4 vols.

Les Pouránas etudes surles derniers monuments de la Litterature Sanskrita, par F. Nève, Paris 8vo. 1852, pamphlet.

The National Atlas of Historical, Commercial and Political Geography, London, folio, 1855.

GOUR DOSS BYSA'CK,

Librarian and Asst. Secy.

1st April, 1856.

FOR MAY, 1856.

At a monthly general meeting of the Society held on the 7th instant at the usual hour.

The Hon'ble Sir James Colville, Kt., President in the Chair.

The proceedings of the last meeting were read and confirmed.

Read Letters.

1st.—From Dr. Walker announcing that Capt. Dalton, of Deb-rooghur, Assam, has dispatched the head of a Takeen for the Society's Museum.

2nd.—From the Rev. J. W. Hislop at Bagdad, advising the dispatch of an Assyrian Slab.

The following gentlemen were named for ballot at the next meeting.

Lieut. De Bourbel, Engineers, proposed by Mr. H. V. Bayley, and seconded by Mr. Grote.

Dr. Mouat proposed (for re-election) by Dr. Thomson, and seconded by Capt. Young.

Lieut. Chancey, Madras Army, proposed by Mr. D. Money, and seconded by Mr. Beaufort.

The Council submitted Reports.

1st.—Announcing that in accordance with the resolution to that effect at the last General Meeting, a deputation consisting of Sir J. Colville, Dr. Spilsbury, Mr. Grote, Babu Rám-gopál Ghose, and Mr. Atkinson, waited upon the Right Hon'ble the Governor General, pursuant to appointment to request him to become the patron

of the Society, and that he was pleased to intimate his acceptance of the office.

2nd.—Stating that Lient. Lees having gone to Europe, his place in the Council had been filled up by the election of Bábu Rájendrálál Mittra, subject to the confirmation of the Society at the next meeting.

3rd.—Submitting a memorial from Mr. Blyth to the Hon'ble the Court of Directors, together with a recommendation "that the memorial of Mr. Blyth be forwarded to the Government of Bengal, with the expression of the high sense entertained by the Society of the value of Mr. Blyth's labours in the department of Natural History, and of its hope that the memorial may be favourably considered by the Hon'ble Court."

The memorial is as follows :—

TO THE HON'BLE THE COURT OF DIRECTORS OF THE EAST
INDIA COMPANY.

The Memorial of Edward Blyth, Curator of the Asiatic Society's Museum, Calcutta.

RESPECTFULLY SHEWETH,—1. That in September, 1855, your Memorialist completed fourteen years of service with the Asiatic Society in Calcutta, as Curator of its Museum, during which long period, he has found that the expenses of living have increased considerably, whilst his salary still continues at its original humble sum of Company's Rupees 250 monthly (granted for the purpose to the Society by your Hon'ble Court); and this, with no kind of promotion nor so much as a retiring pension to look forward to, after any number of years of toilsome service in the climate of Bengal.

2.—That, however desirous the Asiatic Society might be of augmenting your Memorialist's personal allowances, the ever increasing demands upon its income, consequent upon the extension of its collections among other causes, altogether disables it from so doing; and beyond the continuance of a monthly grant of Co.'s Rs. 40, allowed in compensation for some rooms which were formerly occupied by your Memorialist in its Museum, it appears that he cannot hope for a suitable increase of pay from the Asiatic Society, to whatever extent he may exert himself in promotion of its interests.

3.—That the duties of your Memorialist's office are very laborious and of a kind which imperatively demand quietude and the most earnest and undivided attention and constant study; a thorough devotion to them, in fact, which can only be given by a mind undistracted by pecuniary troubles, and freed from the absolute necessity of seeking emolument from other sources, which your Memorialist has been obliged to do, instead of concentrating his whole attention (as he would much rather have done) upon his proper official duties.

4.—It is not for your Memorialist to expatiate upon what he may nevertheless have effected, towards elucidating some branches of the Zoology of India; but he may be permitted to appeal to those naturalists in England who are best qualified to judge of his labours in this line, which have been almost wholly unassisted, and were mostly prosecuted under the great disadvantage of an insufficiency of the necessary books of reference. Under more favourable conditions, and above all, with a personal allowance suitable to the requirements of a decent existence in this very highly and increasingly expensive metropolis, your Memorialist would have been enabled to accomplish more, and in every respect to have proved himself far more efficient in his office; but he has endeavoured to do his best under circumstances of difficulty, and for many years habitually devoted about double the number of hours to the Museum that were required by the terms of his agreement with the Asiatic Society.

5.—That your Memorialist has now passed an important portion of his life in India, and has obtained a familiar practical knowledge of its Zoology in various branches, which materially facilitates the prosecution of further researches; and he is still anxious to bestow the extra time required for such labours and investigations, but finds it impracticable upon present allowances.

6.—He therefore most respectfully memorializes your Hon'ble Court to take his peculiar case into favorable consideration, trusting that some arrangement may be made for granting him a pension after a certain number of years of service, and, in the meanwhile, that a suitable increase of salary may be accorded, that may enable him to devote his entire energies to the multifarious duties of his

Curatorship, unharassed by conflicting pursuits, and by the cares and anxieties inseparable from straitened means.

The recommendation of the Council having been put to the vote was agreed to.

4th.—Submitting with reference to a resolution of the Society at its last meeting the following memo. explanatory of the report of the special Committee which was then read.

MEMORANDA.

“It was the opinion of the Committee that a very considerable outlay is necessary on account of the Museum, no less to secure a proper arrangement and maintenance of its existing collections, than to make due provision for the ever increasing accumulations; and that, independently of the requirement of the Library, the Museum alone, if justice is done to the valuable collections it contains, and adequate provision made for its extension, will absorb a far larger sum than the present surplus income of Rs. 2152 estimated on its ordinary income and expenditure for the year 1855.

At present the ordinary annual cost of the Museum is

about, Rs. 4190

Out of which Government pays, 3600

Leaving a charge on the Society's finances of, 590

This insignificant sum is all that the Society has hitherto felt itself in a condition to devote, as an *ordinary* yearly charge, to the purposes of the Museum.

The Committee after careful consideration came to the conclusion that there was no prospect that the Society's finances would ever be adequate to the pressing and increasing demands on this head, and, feeling strongly the vast importance to science of a really efficient Museum for reference in the Metropolis of India, they were led to suggest that a proposal should be made to Government to take the matter in hand, as the only probable means of accomplishing this object effectually. On the question of reducing the subscriptions therefore they were clearly of opinion that, so long as the Museum has to be supported, no change can be effected, since there appear to be no grounds for believing that a lower scale of subscription will

ever produce a larger annual income, whilst for a time at least the loss must be considerable.

They next considered, the practicability of lowering the rates, provided the Society were freed from all charges in respect of the Museum. In this case they were of opinion that some change might be effected.

They considered, however, that any small diminution would be impolitic, as not holding out sufficient inducement to attract any considerable number of new members. So that the immediate loss of annual income would probably be a permanent one.

They therefore, though with some doubts as to the result, agreed to recommend a reduction of the subscriptions to one half the present rate, depending on the cash balance of Rs. 5,800 in the Bank to meet present loss, and looking to a large influx of new members to restore the finances ultimately to something like their present amount.

The income in 1855 from 125 members at 16 Rs. per quarter was,	Rs.	8000
The income from the same No. at 8 Rs. would be,		4000
		<hr/>
Producing a loss of,		4000
Against this we have a surplus in 1855 of Rs...	2152	
To which may be added the cost of the Museum,	590	
		<hr/>
Making a total of,		2742
		<hr/>
Leaving to be made up by new members,		1258

The income however derived from each additional member at 8 rupees a quarter will be diminished by Rs. 3-8 a year on account of the extra copies of the Journal required, each No. of which must be estimated to cost in printing and paper at least 8 annas.

Thus each additional member will only produce a net income of Rs. 28-8.

Forty-five new members therefore at Rs. 8 a quarter, producing Rs. 1282-8 would be required to make up the deficiency, and this number the committee hoped might be eventually gained, and even exceeded; unless exceeded, however, there would be no annual surplus, and the Library would still be left in its present unsatisfactory state.

Supposing however that the Society with its present liabilities is desirous of a reduction of subscription without making any further provision than now exists for the proper custody and extension of the Museum, the results, estimated as above, will be as follows:—

A reduction to eight rupees per quarter will require sixty-five new members, with no surplus.

A reduction to ten rupees per quarter will require twenty-four new members, with no surplus.

A reduction to ten rupees per quarter will require no new members, with Rs. 152 surplus.

In these calculations, however, the income has been estimated on the supposition that the full amount of subscriptions due from members is realized, which is never the case; whilst, at the same time, the *ordinary* annual expenditure only has been taken into account, although the actual expenditure on account of *extraordinary* demands is always very much in excess of this.

Both these causes vitiate the above results in the same direction.

Thus in 1855 instead of a surplus of 2152 rupees, there was an actual deficit of about 630 rupees on the year's transactions.

Taking this year, therefore, as a standard, with the minimum of reduction, it would be necessary to obtain as many as 57 additional members at 12 Rs. a quarter to meet the current expenses.

The *extraordinary* expenditure for 1855, incurred chiefly on account of the Museum, was no doubt somewhat in excess of the average outlay under this head, but it serves to show the extent of the demands which the Museum makes on the resources of the Society, and the necessity of a surplus income to meet them."

After some discussion Capt. Thuillier gave notice that he would move at the next General Meeting "that a proposition be submitted to the Society at large, that the subscription of members of this Society be reduced from 16 rupees to 10 rupees a quarter."

5th.—Submitting a letter from Dr. H. H. Wilson, Boden Professor of Sanskrit, in the University of Oxford, relating to the management of the Bibliotheca Indica with their proposed reply.

Professor Wilson's letter is as follows :

SIR,—The interest which I must ever take in the proceedings of the Asiatic Society of Bengal, will I hope, be admitted as some

excuse for my volunteering the communication of my opinions on a measure which I conceive injuriously to effect the usefulness and credit of the Society in this quarter of the world.

The Bibliotheca Indica has established a European reputation, and with a few possible exceptions, has hitherto admirably accomplished the purpose for which it was set on foot, in conformity with the intentions and encouragement of the Court of Directors—the circulation of works relating to the literature, sciences, institutions and religion of the Hindus—which existed only in the perishable and rarely accessible condition of manuscripts in India itself, and which were therefore unavailable to European students. Many valuable works have been printed in the series. Many most acceptable in Europe, among which may be specified the Upanishads, the system of logic, and rhetoric, the Surya Siddhanta, the Black Yajush, &c. These may be regarded as especially fulfilling the objects of the Court, supplying the wants and gratifying the expectations of European Indian scholars, whose only remaining desires are that those works which have been commenced and are yet unfinished should be completed with as little delay as may be avoidable, and that *when they are finished*, publications of a similar character especially those illustrative of the Vedas, and the literature connected with them, as the Bráhmaṇas and Sútras, should be undertaken.

It is therefore with much concern that the cultivators of Indian literature have observed the disposition lately evinced by the Society, to divert the numbers of the Bibliotheca Indica to a branch of literature which however valuable it may be in some respects, is neither of Indian origin nor relations, throwing no light whatever on the social system of the bulk of the population, and wholly valueless as a clue to the ancient history of the country. The publication is becoming more of a Bibliotheca Arabica, than a Bibliotheca Indica, a character which it was not originally intended to bear and which in India itself can be of interest only to a very few learned Mohammadans, professors and teachers of Islam.

Now it may be questioned if any extensive multiplication of Arabic works is needed for the supply of Arabic scholars in Europe. There is already a copious collection of the most important works in Arabic in print, and Manuscripts are far from rare or difficult of

access. In this country they are numerous, at the British Museum, in the Libraries of Oxford and Cambridge, and there is scarcely a university on the continent without them, whilst Sanskrit MSS. are to be found only in London, Oxford, Paris and Berlin. There is by no means therefore the same reason for perpetuating Arabic MSS. by the Indian Press, and there is no urgent necessity for the intervention of the Asiatic Society of Bengal.

It may also be doubted if, in respect of the Arabic works hitherto committed to the press by the Society, due attention has been paid either to the interests of general literature or the tastes and wants of European Arabic scholars. The Itqan Sayuty extending through ten fascicules, the exégesis of the Koran, is no doubt important to Mohammadan Theologians, but few Europeans, it is to be expected, would be inclined to look upon the exegetic sciences of the Koran as a very improving or attractive study. With regard also to the biography of those who knew Mohammed, many of the individuals are of extreme insignificance, and none of them could have exercised any influence on events in India, where the name of Mohammed himself was scarcely known before the tenth or eleventh century. Although also the history of his campaigns and that of the conquest of Syria come within the scope of general literature and may have an interest to the students of Mohammadan history, yet they are open to the same objection that applies to the other works; they have no relation near or remote to India, and do not serve in any way to illustrate its past or present condition. Again, reasonable exception may be taken to such publications as the Dictionary of the Technical Terms used in the sciences of the Mohammadaus, on the grounds of incompatibility and expence. The Bibliotheca Indica has been hitherto confined to works of moderate size and cost, and has been wisely so restricted, being thus brought within the reach of European purchasers. Dictionaries must always be of greater or less extent and cannot be printed except at a proportionate charge, which will bear heavily upon the funds at the Society's disposal. When printed also they can be sold only at a price which few students in Europe can afford, for the Society must not think that charges which appear moderate in India, will be thought so by oriental scholars in Europe. The sale will therefore be restricted

whilst the outlay is enhanced. Besides which the publication of such a work is quite inconsistent with the intention of the Bibliotheca Indica, which was to furnish scholars with books to read, not to provide students with the means of learning to read them.

The objection to the printing of Dictionaries on the score of expense, applies generally to this extension of the scheme of the Bibliotheca. If it is to comprehend all Mohammadan as well as all Hindu literature, where are the funds to be found? Each is sufficiently copious to absorb all the means placed by the liberality of the Court at the command of the Society for the publication of Indian literature especially; and to attempt to combine with this Arabic literature also, must end in starving both. Exceptions in favour of the latter where bearing upon Indian Mohammadanism or Indian history under the Mohammadans may be admitted, but the usefulness and success of the Bibliotheca will be grievously impaired if the present disproportionate extension of a literature alien to India be persevered in. I have no wish to undervalue the importance of Arabic literature or the merits of those gentlemen by whom it is so zealously and successfully cultivated, but Persia, Arabia, Egypt, Africa, Turkey, are the fields in which it is the most natural and productive crop, whilst in India it is, like the Mohammadans themselves, a stranger and intruder.

Trusting that the Society will receive this, as it is intended, as a proof of my sincere interest in its continued prosperity, believe me,

Yours very truly,

Sd. H. H. WILSON.

To this letter the Council proposed the following reply:—

SIR,—In replying to your letter dated 17th August, 1855, addressed to the Secretary of the Asiatic Society of Bengal, I am directed by the Society to intimate to you the gratification it feels in being assured of your continued interest in its welfare and reputation, whilst it gladly acknowledges that your opinions and advice are entitled to the most attentive consideration, as well from your distinguished position in Oriental Literature, as from the many important services rendered by you to the Society both in India and at home.

The important nature of your communication, affecting alike the

Literary reputation of the Society and its faithfulness in the discharge of a trust committed to it, has given rise to a lengthened discussion amongst the members of the Philological Committee and the Council generally, and has thus occasioned a somewhat protracted delay in framing a reply.

In considering your strictures and suggestions upon the choice of works selected for the *Bibliotheca Indica* it is necessary to recall the origin and intended scope of this series of oriental publications.

It had its origin in the following circumstances :

In the year 1835 the Government of India peremptorily prohibited the publication of any Oriental works at the expense of the fund which had been set apart under the charter act of 1813 to be applied in part to the revival and improvement of Literature and the encouragement of the learned natives of India. It was further directed that the printing of the whole of the Oriental works then in progress with two exceptions should be immediately discontinued.*

This measure was regarded with extreme regret by the Asiatic Society, and an appeal was made by it to the Governor General in Council begging that the obnoxious order might be rescinded.

The Government declined to accede to the Society's request, but offered to make over, with one or two exceptions, all the unfinished Oriental works to "the Asiatic Society or any other Society or individuals willing to complete them at their own expense."

This offer was accepted by the Society, and they proceeded to complete the unfinished works, proposing at the same time to undertake the publication of a fresh series as soon as this part of their task was accomplished.

To enable them to carry out their views a memorial was drawn up and forwarded to the Court of Directors, in which the Society expressed their assurance that if the Court deemed it "inexpedient to alter the appropriation of the Parliamentary fund, which the local Government had determined upon, they would devise some other means of continuing that encouragement to the cause of Asiatic Literature which reflected honor on the hand that dispensed it ;"

* It is worthy of remark that the two works excepted from the general sentence were the *Fatawa Alungiree* and a treatise on Spherl. Trig. both Arabic.

and the memorial proceeds to ask for "pecuniary aid in the expense of publishing standard and useful works in Oriental Literature."

At this period the Society was fortunate in enjoying the advantage of your assistance as its agent in Europe, and you warmly supported the memorial in two letters, dated in 1836 and 1837, in one of which you characterize the grant solicited as "a provision for the encouragement of learned natives and the revival of native Literature, and for publishing the most esteemed writings of the East for the use as much of Europeans as of Asiatics."

The Court replied in a despatch (No. 8 of 1838) addressed to "Our Governor of the Presidency of Fort William in Bengal" from which the following is an extract.

"We are still of opinion that the publication of Oriental works and works on instruction in the Eastern languages, should not be abandoned. We therefore authorize you to devote a sum not exceeding 500 Rupees a month to the preparation and publication of such works either through the medium of the Asiatic Society or any equally appropriate channel."

It was in these general terms that the Court was asked for and accorded the grant out of which the expenses of the Society's Oriental publications have since been defrayed.

The unfinished editions made over to the Society by Government comprized Sanskrit, Arabic, and Persian works, and these having been completed, a new series, under the name of *Bibliotheca Indica*, was commenced in 1847.

This was at first entrusted to the Editorship of a Sanskrit scholar, and all the earlier works which appeared in it were Sanskrit. Dr. Sprenger's work on Arabic Bibliography in 1849 was the first intrusion into the series of another Oriental language and the commencement of Nejamy's *Khiddnamah* in 1852, in Persian was the next.

Subsequently (in 1852) the series was placed on a new footing. The Society dispensed with the single paid Editor and invited Editors of texts from the general body of Oriental scholars.

All offers to edit works were first carefully sifted by the Philological Committee, and if the Council adopted their recommendation, the Society's sanction to the publication was obtained at an ordinary general meeting.

Under this system all the most distinguished scholars, which India now possess, Sanskrit, Arabic and Persian, have been applied to to edit texts. Amongst the proposals consequent on these applications every Sanskrit work, with the exception of those noted in the

margin* which were declined on their merits, has been adopted, and if a greater number of Arabic fasciculi, as compared with Sanskrit, have appeared in any one year, this must be

attributed to the comparative inactivity of the editors of some of the Sanskrit works, and not to any partiality that has been shewn for Arabic literature, as may be seen by a reference to the Society's list of works, published and in progress.†

With regard to the principles of selection, the Society has not considered itself restricted in any way by the terms of the grant to the publication exclusively of works illustrative of Indian civilization.

The general interest of Literature in the historical and social phenomena of Asia with its systems of religion and philosophy have been the considerations which have guided its choice.

Of the estimation in which the Arabic works selected for publication are held in this country an immediate test is afforded by the ready sale they meet with, which, even in the case of the large unfinished works, such as Dr. Sprenger's two dictionaries, has been nearly equal to that of the Sanskrit editions, and will be presumably greater when they are completed.

That they should not meet with the like approval in Europe would be a source of regret to the Society.

Whilst, however, the Society cannot admit, in view of the circum-

† In addition to these the Philological Committee have agreed to recommend the following works for publication when the state of the funds permits.

Venisañhāra.	Aniruddha-champu.
Anargharāghava.	Kāvyaḍars'a.
Prasannarāghava.	Setubandha.
Nāgānanda.	Nyaya Sutra.
Lalitamādhava.	Vīshṇu Purāṇa
Vidagdhamādhava.	Daśarūpaka.

stances attending the Government grant, that they have violated any obligation, expressed or implied, to expend it exclusively in "the circulation of works relating to the Literature, Sciences, Institutions and Religion of the Hindus," they are at the same time quite ready to consider the expediency of introducing further changes into the management of the Bibliotheca Indica.

But absolutely and by positive rule to restrict the Bibliotheca Indica to Sanskrit works, or to works relating exclusively to India, would, they think, be unwise as regards the interests of Oriental Scholars in Europe, and mischievous in the discouragement it would afford to the cultivation of Arabic and Persian literature in this country, where it possesses such ardent and able votaries.

But it is the desire of the Society, no less than their interest, to satisfy the tastes and meet the wants of the learned in Europe, and recognizing you as an authoritative exponent of those tastes and wants, they have every disposition to be guided in a great measure by the views which you have so ably advanced for their consideration and whilst giving you this assurance they desire to express their sincere obligations for the friendly interest you have now and at all times manifested in the prosperity of a Society with which you have been so long and so intimately connected.

I have, &c.

The reply was approved and adopted.

The election of Dr. A. Sprenger as a member of the Council and Joint Secretary to the Society reported at the last meeting, was confirmed under bye-law 60.

Communications were received

From Babu Rádhanáth Sikdár, forwarding copy of a Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of February last.

From Mr. Assistant Secretary Oldfield, enclosing copy of a Meteorological Register kept at the Office of the Secretary to the Government of N. W. P., Agra, for the months of February and March, 1856.

From Sir R. Hamilton, Bart., Agent to the Governor-General,

Central India, sending a table of heights and distances along the Railway line from Surat to Agra.

From Col. Hannay through Mr. Grote, announcing the discovery of a rich vein of iron ore at Dhubri.

The Secretary read extracts from the letter.

From Mr. Piddington, submitting a paper entitled, "A second series of experiments to ascertain the mean quantity of silt held in suspension by the water of Hooghly in various months of the year, and also the quantity carried out to sea," as also "Notes of an examination of three specimens of Bengal mineral waters."

The Librarian submitted his usual monthly report.

Mr. Oldham, at the request of the President, proceeded to give some account of the results he had arrived at from the investigations conducted by himself and his assistants in the Geological Survey in Central India during the past season.

Briefly referring to the many valuable papers which had been contributed by previous observers illustrative of the Geology of Central India, and to the fact that few parts of the immense empire of India had excited more interest and attention than the districts adjoining the Nerbudda river, Mr. Oldham pointed out that the great thickness of sandstones and associated beds, which formed the mass of the Vindhya range, was the most striking and remarkable feature in that country. This had been spoken of as "*the sandstone*," "*the great sandstone, &c.*" Capt. Franklin had referred it to the age of the middle portion of the new red sandstone of European geologists. Jacquemont, for the greater part at least of the area, assented to this view. Other observers had given it a different position. Captain Sherwill for instance had mapped it as Old Red sandstone, although giving it the somewhat anomalous position of resting upon "*mountain limestone*." In 1854, Dr. Carter of Bombay had published a carefully compiled summary of the Geology of India, in which the whole of this sandstone and associated beds was referred to the same age as the coal bearing rocks of Bengal, all which he classed with the Oolitic or Jurassic epoch of European geologists, and he took his typical groups, and the names for his subdivisions from localities in this district. He divided the whole into three sub-groups, which he called—Tara, Kuttra and Punnah groups, in

ascending order; the coal being supposed to belong to the central or the Kuttra group. And this classification he applied to other districts. Again on the geological map of India, recently published under the sanction of the Court of Directors, by Mr. Greenough, all this immense area, stretching from the Soane to near Mundlairsir in the Nerbudda, was placed under the general head of Oolitic and Diamond sandstone and limestone.

The researches of the Geological Survey of India, had extended over a considerable portion of this district during the past season, and although much remained to be done in working out the details, as might be anticipated in so large an area, sufficient had been learned to enable a few great conclusions to be drawn. It was at present impossible to give all the detailed illustrations of these, and they would therefore be only stated as briefly as possible. The importance of them would at once be recognised by those who had given any attention to these enquiries, tending as they did to modify existing opinions, and to alter the colouring of all our geological maps in the most marked and extended way.

Their late investigations had shewn—that there was good evidence of a great faulting, accompanied by much disturbance mechanically, and by much alteration chemically, in the rocks, (more especially to the south of this fault), which passed along the main line of the Nerbudda valley, along the continuation eastward of this line down the valley of the Soane; and thence across Behar, where the continuation of the same rocks formed the Kurruckpoor hills.

That there was a high probability that this line of dislocation was continued to the east by north, up or towards the valley of Assam; its main direction being E. 15° to 18° N., corresponding with the main direction of the Vindhya range and the Khasi hill range.

That south of this dislocation the great group of sandstones, shales, &c., forming the Vindhya hills, was almost entirely absent, (unless it were admitted, see below, that the highly metamorphosed rocks there seen were the continuation downwards of the same series greatly altered).

That this great group was altogether of a different character and of a more ancient epoch than the beds associated with the coals of

Bengal and of Central India. (The latter resting quite unconformably on the former).

That from the absence of organic remains, there was as yet no evidence on which to base a reference of this group to any established epoch of European geology. (It *might be* Cambrian).

That the names hitherto assigned to this group and its subdivisions being based on erroneous views of position, and therefore tending to erroneous conclusions, must be abandoned.

For the whole formation Mr. Oldham proposed the name *Vindhyan*, stating that it appeared most desirable that the general *physical* relations of the rocks should be determined, and the several groups established on such evidence derived from the actual arrangement and sequence of the rocks rather than from some fancied or imperfectly established analogies derived from partially collected or partially examined organic remains. When the actual sequence of the various groups had been established, wherever this was possible, the organic evidence would be valuable. Applying the name *Vindhyan* then to this great group as being best seen in the well exposed scarps of the *Vindhyan* range, he would propose as distinctive of the subdivisions in ascending order, the names *Kymore*, *Rewah* and *Bundair*. These minor groups were only given provisionally, as it was possible that more detailed examination would shew that there was only a twofold division, and that the *Rewah* limestone and *Bundair* sandstone were only repetitions of the *Soane* valley limestone and sandstone produced by faulting.

Resting unconformably upon the *Vindhya* formation, there was a considerable thickness of sandstones, shales and coals, (in Central India much disturbed, and traversed by trap dykes). The total thickness of this group in this district exceeded some thousand feet. In these beds occurred numerous fossil plants, which thoroughly identified these rocks with the coal-groups of *Burdwan*, of *Hazareebaugh* and of *Cuttack*. No *additional* evidence tending to settle the doubtful question of their true geological epoch had been obtained, nor on the other hand anything to shake the probability of their *Jurassic* date.*

* Taking it as proved that the strata at *Kotah*, from which the fish and *Saurian* remains had been obtained, were the same with those of *Kampti* near *Nagpore*, the

Resting again quite unconformably upon these rocks was found another series of sandstones, often ferruginous, generally speaking irregularly though strongly bedded, and of great thickness. These formed the lofty and boldly scarped range of the Puchmurry or Mahadewa hills. And to this group Mr. Oldham proposed to give the name of Mahadewas. No organic evidence had been found in these. In one or two places they seemed to pass upwards conformably into sandstones holding remains of large mammalia (and probably of Sewalik date.)

This group was markedly separated from the coal-bearing group below, and as compared with it was also characterized by the comparative absence of trap dykes or other exhibitions of igneous rocks.

Upon these, in parts of the district, rested the great spreading sheets of trap rocks forming the continuation of the immense basaltic field of the Deccan. Four and five distinct flows could readily be traced in places. And adverting to the occurrence of the beds containing shells (*Physa*, *Paludina*, *Unio*, &c.) which were found between these flows (Intertrappean lacustrine formation, of Carter) *so far as the evidence derived from the Nerbudda district was concerned*, it appeared that there was no reason to suppose that they were confined to any one layer or flow, and still less reason to suppose that their present aspect and condition was due to the intrusion of the igneous rocks from below (as advocated by some), but that on the other hand there was much ground for thinking that this alteration was entirely due to the subsequent overflowing of the heated mass of the trap above, and to the disturbances consequent on the exhibition of such powerful forces as must have accompanied the production of these immense flows of lava. These shelly beds seemed to have been formed by tranquil deposition during the intervals between the successive flows of igneous rock, and to have been broken up indurated and baked by the succeeding outbreak. Mr. Oldham stated, that in making this remark, he wished to say that he had not had the opportunity of seeing the localities referred to by Messrs. Hislop and Hunter, near Nagpore, from which those careful observers had drawn their conclusions, but that his view had strong *Permian* analogies of the Saurians (*Brachyops*) ought not to be overlooked. But the identity of the strata was, he thought, still to be established.

been derived solely from the facts presented to him in other places.

The detailed examination of the greater part of the Nerbudda district was due to the exertions of Mr. J. G. Medlicott.

The following would therefore give a summary view of the groups here proposed in descending order, neglecting for the present all the more recent divisions.

	<i>Groups.</i>	<i>Mineral character.</i>	<i>Age, &c.</i>
	Mahadewa,.....	Sandstones, with a few shalybeds, for the most part pebbly, often striped with ferruginous bands.	Geological age unknown, a few vegetable fossil stems, &c.
	Damoodah,.....	Shales, sandstones, coal, for the most part thinly bedded and regular, often greatly cut up by trap dykes. <i>In Cuttack however there are no trap rocks.</i>	Age not thoroughly decided, probably Jurassic, fossils chiefly vegetable—name taken from the locality where series is most fully developed.
Vindhya.	Bundair,	Sandstones, and shales.	Age unknown, probably very ancient, seen all along Vindhya range, into Behar and to the Ganges at Monghyr. Probably also in the Khasia Hills. Possibly only <i>two</i> subdivisions.
	Rewah,	Limestones, shales and sandstones.	
	Kymore,	Sandstones and limestones and shales.	
	Sub-Kymore,.... (name proposed by H. B. Medlicott, Esq.),....	Crystalline limestone pseudo-gneiss, micaceous schists, and quartzites, red and green, and white,	Highly probable, though not yet thoroughly proved, that these are only the continuation downwards of the Vindhya groups subsequently altered.

Granite, gneiss, hornblende-rock, greenstone, &c.

Another district of considerable interest had also been examined during the past season, by Messrs. Blandford and Theobald, and the results arrived at under their careful scrutiny had been strongly confirmatory of the results given above. The Cuttack, or Talchere coalfield gave the following section, descending:—

Alluvium, laterite, &c.

1.—Upper grit series,—unfossiliferous—quartzose grits and coarse sandstones, with occasional red shales; pebbly throughout, and near base conglomeritic—above 2000 feet.

2.—Carbonaceous shale series, fossiliferous, consisting of—

(a)—Blue and lilac shales, micaceous; white speckled sandstones and ironstones, about 1500 feet thick.

(b)—Carbonaceous shales containing thin seams of coal (3 inches) irregularly dispersed through them, about 200 feet.

(c)—Shales and coarse white sandstones, the latter predominate in lower portion, 100 to 200 feet.

3.—Lower shale and sandstone series, annelide tracks, consisting of—

(a)—Blue nodular shales, generally arenaceous.

(b)—Fine sandstones, much jointed and “tesselated.”

(c)—“Boulder bed,” containing numerous boulders of gneiss and granite frequently 5 to 6 feet across—in a fine argillaceous or arenaceous rock, often rippled, sometimes replaced by a coarse sandstone.

Each of these series rested unconformably on that beneath it.

He would for the present avoid entering on the consideration of the more recent deposits, which were however, full of interest, and would be referred to on some other occasion.

Mr. Oldham, in putting forward these views, deprecated the idea, that in differing so entirely from any previous observers he should be supposed to wish to throw any censure or discredit on their labours. On the contrary, the more closely those labours were examined the more valuable most of them appeared, and to many were they indebted for most important observations. The results arrived at were rather a proof of the absolute necessity of the geological examination of a large country being under one combined and systematic control. The rocks which this evening he hoped he had been able to reduce into some order, he had first met with some years back in Bengal, but from the peculiar way in which they were then seen, it was impossible to make out their relations. It was constantly thus: the examination of one district would throw light on and remove the difficulties of another, and while independent observers would in all probability have continued to group together things essentially different, or separate others essentially the same,

uniformity of result could only be obtained by an uniform method of examination and a combined system of investigation. It was to this that the Government Survey owed their results, not to any superiority individually over previous investigators of the districts referred to.

On the motion of the President the best thanks of the Society were voted to Mr. Oldham for his highly interesting communication.

W. S. ATKINSON, *Secretary*.

LIBRARY.

The Library has received the following accessions during the month of April last.

Presented.

Journal of the Statistical Society of London, Part. I. Vol. XIX.—BY THE SOCIETY.

Journal Asiatique for January, 1856, Part VII.—BY THE SOCIETY.

Journal of the Agricultural and Horticultural Society of India, Vol. IX. part II.—BY THE ASSOCIATION.

Catalogue of the Vernacular Literature Committee's Library.—BY BABU RA'JENDRA'LA'L MITTRA.

The Eighteenth Report of the Proceedings of the Calcutta School Book Society.—BY THE SAME.

The Thirty-third Annual Report of the Parental Academic Institution and Doveton College.—BY MR. G. SMITH.

The Quarterly Journal of the Geological Society, No. 45.—BY THE SOCIETY.

Proceedings of the Royal Society of London, Nos. 17 and 18.—BY THE SOCIETY.

Upadeshák for April, 1856.—BY THE EDITOR.

The Oriental Christian Spectator for March and April, 1856.—BY THE EDITOR.

The Calcutta Christian Observer for April, 1856.—BY THE EDITORS.

The Oriental Baptist for April, 1856.—BY THE EDITOR.

The Durbin, a Persian Newspaper for April, 1856.—BY THE EDITOR.

The Citizen Newspaper for ditto, 1856.—BY THE EDITOR.

The Tattwabodhini Patrika, No. 153.—BY THE TATTWABODHINI SOBHA.

Exchanged.

The Atheneum for January and February, 1856.

Philosophical Magazine, Nos. 70 and 71, Vol. II.

Purchased.

- Comptes Rendus, Nos. 1 to 9, 1856, Vol. 42.
Journal des Savants, for January and February, 1856.
Revue et Magasin De Zoologie, No. 12 of 1855 and No. 1 of 1856.
The American Journal of Science and Arts, No. 61.
L'Atheneum Français, Nos. 49 to 52, December, 1855.
The Quarterly Review for December, 1855.
The Edinburgh Review, No. 209 for January, 1856.
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Collection D' ouvrages Orientaux, Vol. 3rd.
Annales des Sciences Naturelles, Nos. 1 and 2, Tome 4th.
Revue des Deux Mondes, 15th January, for February and 1st March, 1856, Vol. I.
Zietschrift fur die kunde des Morgenlandes, Part I. Vol. I.
The Annals and Magazine of Natural History, No. 99, Vol. 17.
Literary Gazette, Nos. 1 to 3, March, 1856.
GOUR DOSS BYSA'CK, *Librarian & Asst. Secy.*
The 1st May, 1856.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of November, 1855.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Feet
Height of the Cistern of the Standard Barometer above the level of the Sea, 18.11

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
1	29.956	30.031	29.907	.124	75.3	83.4	68.4	15.0
2	.917	29.970	.850	.120	76.8	84.4	69.8	14.6
3	.919	.982	.865	.117	78.2	84.0	72.4	11.6
4	<i>Sunday.</i>							
5	.990	30.059	.946	.113	79.1	85.3	73.6	11.7
6	.951	.009	.902	.107	76.9	84.2	70.5	13.7
7	.950	.017	.904	.113	77.4	84.4	72.1	12.3
8	.950	.032	.895	.137	77.5	85.0	72.4	12.6
9	.916	29.981	.857	.124	78.5	87.0	72.4	14.6
10	.934	30.003	.882	.121	78.7	86.8	74.4	12.4
11	<i>Sunday.</i>							
12	.982	.070	.926	.144	75.0	83.6	67.9	15.7
13	.947	.020	.889	.131	74.1	82.6	67.2	15.4
14	.945	.030	.880	.150	74.7	83.5	67.6	15.9
15	.954	.025	.909	.116	74.1	82.6	67.2	15.4
16	.955	.020	.899	.121	74.1	83.5	67.2	16.3
17	.955	.030	.898	.132	73.6	83.0	67.0	16.0
18	<i>Sunday.</i>							
19	.947	.021	.897	.124	72.7	83.6	64.8	18.8
20	.957	.026	.902	.124	73.9	83.2	66.2	17.0
21	30.031	.108	.966	.142	73.8	82.6	67.8	14.8
22	.043	.123	.998	.125	71.8	80.4	65.0	15.4
23	.031	.088	.965	.123	70.7	80.0	62.8	17.2
24	.036	.109	.957	.152	71.0	80.6	63.6	17.0
25	<i>Sunday.</i>							
26	.063	.129	30.022	.107	71.8	80.6	65.0	15.6
27	.090	.158	.028	.130	71.8	81.5	65.4	16.1
28	.082	.141	.018	.123	71.8	81.2	64.6	16.6
29	.088	.155	.030	.125	71.0	79.8	64.4	15.4
30	.090	.156	.039	.117	69.8	80.4	61.2	19.2

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of November, 1855.*

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Date.	Mean Wet Bulb Ther- mometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of air.	Additional weight of Va- pour required for com- plete saturation.	Mean degree of Humi- dity, complete satura- tion being unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
1	69.0	6.3	65.8	9.5	0.634	6.90	2.50	0.734
2	71.0	5.8	68.1	8.7	.684	7.41	.42	.754
3	72.6	5.6	69.8	8.4	.722	.82	.43	.763
4	<i>Sunday.</i>							
5	72.6	6.5	69.3	9.8	.711	.67	.86	.728
6	71.4	5.5	68.6	8.3	.695	.55	.31	.766
7	71.7	5.7	68.8	8.6	.699	.57	.44	.756
8	72.0	5.5	69.2	8.3	.708	.69	.35	.766
9	73.3	5.2	70.7	7.8	.744	8.05	.30	.778
10	73.4	5.3	70.7	8.0	.744	.05	.36	.773
11	<i>Sunday.</i>							
12	68.7	6.3	65.5	9.5	.628	6.84	.47	.735
13	67.9	6.2	64.8	9.3	.613	.71	.36	.740
14	68.4	6.3	65.2	9.5	.621	.77	.46	.733
15	66.3	7.8	62.4	11.7	.567	.18	.89	.681
16	67.3	6.8	63.9	10.2	.595	.50	.57	.717
17	67.3	6.3	64.1	9.5	.599	.54	.39	.732
18	<i>Sunday.</i>							
19	66.7	6.0	63.7	9.0	.591	.47	.21	.745
20	68.6	5.3	65.9	8.0	.636	.95	.06	.772
21	67.8	6.0	64.8	9.0	.613	.71	.27	.747
22	65.6	6.2	62.5	9.3	.568	.24	.21	.738
23	65.1	5.6	62.3	8.4	.565	.21	1.97	.759
24	65.1	5.9	62.1	8.9	.561	.16	2.09	.747
25	<i>Sunday.</i>							
26	66.9	4.9	64.4	7.4	.605	.65	1.80	.787
27	66.5	5.3	63.8	8.0	.593	.50	.95	.769
28	65.7	6.1	62.6	9.2	.570	.26	2.19	.741
29	65.2	5.8	62.3	8.7	.565	.20	.05	.752
30	63.0	6.8	59.6	10.2	.516	5.68	.27	.714

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Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Hour.	Mean Height of the Barometer at 32° Fah.	Range of the Barometer for each hour during the month.			Mean Dry Bulb Thermometer.	Range of the Temperature for each hour during the month.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
Mid-night.	29.985	30.096	29.904	0.192	70.7	76.6	66.2	10.4
1	.978	.093	.906	.187	70.1	76.4	65.0	11.4
2	.971	.089	.889	.200	69.6	76.4	64.8	11.6
3	.962	.081	.893	.188	69.3	76.2	64.0	12.2
4	.966	.078	.891	.187	68.8	75.6	63.6	12.0
5	.975	.092	.905	.187	68.2	75.1	62.6	12.5
6	.991	.100	.917	.183	67.8	75.3	61.2	14.1
7	30.015	.118	.947	.171	68.1	75.0	61.4	13.6
8	.038	.149	.961	.188	71.6	77.9	65.8	12.1
9	.055	.158	.970	.188	74.9	79.8	69.5	10.3
10	.055	.156	.969	.187	76.9	81.2	73.4	7.8
11	.037	.135	.941	.194	79.1	83.0	75.6	7.4
Noon.	.010	.108	.925	.183	81.1	85.0	77.8	7.2
1	29.976	.077	.895	.182	82.2	86.3	78.6	7.7
2	.953	.063	.860	.203	82.8	87.0	79.6	7.4
3	.938	.040	.850	.190	82.7	86.8	79.4	7.4
4	.934	.041	.852	.189	80.6	85.0	77.0	8.0
5	.944	.061	.861	.200	78.7	83.0	74.4	8.6
6	.953	.072	.865	.207	76.6	81.0	72.4	8.6
7	.974	.091	.888	.203	75.0	79.4	70.2	9.2
8	.990	.100	.908	.192	73.9	78.8	69.4	9.4
9	30.000	.110	.920	.190	72.8	79.0	67.7	11.3
10	.006	.113	.919	.194	72.1	78.6	66.6	12.0
11	29.998	.114	.911	.203	71.2	77.8	65.6	12.2

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Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Hour.	Mean Wet Bulb Thermo- meter.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional weight of va- pour required for com- plete saturation.	Mean degree of Humidity, complete saturation be- ing unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
Mid- night.	67.6	3.1	66.0	4.7	0.638	7.01	1.17	0.857
1	67.2	2.9	65.7	4.4	.632	6.96	.07	.867
2	66.7	2.9	65.2	4.4	.621	.85	.05	.867
3	66.5	2.8	65.1	4.2	.619	.83	.00	.872
4	66.0	2.8	64.6	4.2	.609	.73	0.98	.873
5	65.6	2.6	64.0	4.2	.597	.60	.98	.871
6	65.3	2.5	63.8	4.0	.593	.56	.92	.877
7	65.6	2.5	64.1	4.0	.599	.62	.93	.877
8	67.4	4.2	65.3	6.3	.623	.85	1.55	.815
9	68.5	6.4	65.3	9.6	.623	.79	2.49	.732
10	69.3	7.6	65.5	11.4	.628	.83	3.03	.693
11	70.0	9.1	65.4	13.7	.626	.76	.77	.642
Noon.	70.4	10.7	65.0	16.1	.617	.65	4.52	.595
1	70.6	11.6	64.8	17.4	.613	.60	.94	.572
2	70.8	12.0	64.8	18.0	.613	.58	5.17	.560
3	70.4	12.3	64.2	18.5	.601	.44	.28	.549
4	69.7	10.9	64.2	16.4	.601	.48	4.53	.588
5	70.2	8.5	65.9	12.8	.636	.88	3.53	.661
6	70.2	6.4	67.0	9.6	.659	7.15	2.62	.732
7	69.8	5.2	67.2	7.8	.664	.23	.08	.777
8	69.3	4.6	67.0	6.9	.659	.20	1.81	.799
9	68.8	4.0	66.8	6.0	.655	.17	.54	.823
10	68.3	3.8	66.4	5.7	.646	.08	.45	.830
11	67.9	3.3	66.2	5.0	.642	.05	.25	.849

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Solar radiation, Weather, &c.

Date.	Max Solar radiation.	Rain.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches.		
1	136.0	..	N. W. or W.	Cloudless till 4 A. M. scattered \i or \i afterwards.
2	144.0	..	N. W. or N.	Scattered \i and \i till 6 P. M. cloudless afterwards.
3	141.2	..	N. or N.E. or N.N.W.	Cloudless till 10 A. M. scattered \i and \i afterwards.
4	<i>Sunday.</i>	..	..
5	142.0	..	N. W. or N.	Scattered \i or \i till 9 A. M. cloudless afterwards.
6	138.0	..	W.	Cloudless.
7	139.2	..	N. W. or W.	Cloudless.
8	139.0	..	W.	Cloudless nearly the whole day.
9	141.0	..	W.	Cloudless.
10	144.0	..	W.	Cloudless.
11	<i>Sunday.</i>	..	..
12	142.0	..	W.	Cloudless.
13	136.5	..	W.	Cloudless.
14	137.4	..	W.	Cloudless.
15	142.0	..	W.	Cloudless.
16	147.0	..	W. or W. N. W. N. W.	Cloudless.
17	136.5	..	W.	Cloudless.
18	<i>Sunday.</i>	..	..
19	139.0	..	W. or S. W.	Cloudless.
20	142.0	..	W. or S. W.	Cloudless.
21	137.9	..	S. E. or N. E. or W.	Cloudless.
22	140.0	..	W.	Cloudless.
23	135.0	..	W. or N.	Cloudless.
24	137.2	..	N. W. or W.	Cloudless.
25	<i>Sunday.</i>	..	..
26	134.0	..	W. or N. W.	Cloudless till 2 A. M. various clouds till 5 P. M. cloudless afterwards.
27	140.0	..	Calm or N. W. or N.	Cloudless till 9 A. M. scattered \i or \i till 6 P. M. cloudless afterwards.
28	135.6	..	N. or N. N. W.	Cloudless.
29	135.0	..	N. W. or N.	Cloudless till Noon scattered \i till 6 P. M. cloudless afterwards.
30	141.0	..	N. or N. N. W.	Cloudless till 7 A. M. scattered \i or \i till 7 P. M. cloudless afterwards.

\i Cirri, \i cirro strati, \i cumuli, \i cumulo strati, \i nimbi, —i strati, \i i cirro cumuli.

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Latitude 22° 33' 1" North, Longitude 88° 20' 34" East.

Height of the cistern of the Standard Barometer above the Level of the Sea 18.11. feet

Daily Means, &c. of the Observations, and of the Hygrometrical elements
dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
1	30.111	30.176	30.049	0.127	69.4	78.4	62.1	16.3
2	<i>Sunday.</i>							
3	.106	.169	.044	.125	69.2	77.9	62.4	15.5
4	.117	.182	.065	.117	69.9	79.4	63.6	15.8
5	.106	.194	.043	.151	70.1	80.5	61.8	18.7
6	.068	.147	.005	.142	69.9	80.0	61.8	18.2
7	.026	.116	29.972	.144	68.8	79.2	61.2	18.0
8	.031	.126	.977	.149	68.1	78.2	60.2	18.0
9	<i>Sunday.</i>							
10	.008	.097	.947	.150	65.1	75.0	57.0	18.0
11	.039	.118	.981	.137	65.8	76.2	57.0	19.2
12	.013	.092	.949	.143	65.4	75.6	57.6	18.0
13	29.965	.033	.902	.131	65.2	75.0	57.4	17.6
14	.981	.056	.924	.132	65.3	74.8	57.8	17.0
15	30.003	.078	.951	.127	65.9	76.2	58.0	18.2
16	<i>Sunday.</i>							
17	.042	.132	.977	.155	65.7	76.4	57.3	19.1
18	.049	.130	30.001	.129	65.0	75.6	57.2	18.4
19	.052	.139	29.986	.153	66.8	77.0	59.6	17.4
20	.067	.145	30.012	.133	68.1	78.4	59.8	18.6
21	.068	.142	.008	.134	68.5	79.2	60.4	18.8
22	.038	.110	29.969	.141	68.5	78.8	60.6	18.2
23	<i>Sunday.</i>							
24	29.981	.065	.920	.145	66.5	76.7	58.2	18.5
25	<i>Xtmas.</i>							
26	.995	.088	.945	.143	64.6	75.4	56.0	19.4
27	30.002	.088	.933	.155	65.2	76.1	57.0	19.1
28	29.998	.081	.947	.134	65.4	76.6	56.6	20.0
29	.954	.028	.906	.122	66.9	79.4	56.6	22.8
30	<i>Sunday.</i>							
31	30.044	.128	.997	.131	64.2	74.4	56.2	18.2

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Date.	Mean Wet Bulb Thermometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional Weight of Vapour required for complete saturation.	Mean degree of Humidity complete saturation being unity.
					Inches.	T. gr.	T. gr.	
1	63.8	5.6	61.0	8.4	0.541	5.96	1.90	0.758
2	Sunday.							
3	64.3	4.9	61.8	7.4	.555	6.12	.69	.784
4	64.8	5.1	62.2	7.7	.563	.19	.79	.776
5	64.1	6.0	61.1	9.0	.543	5.97	2.06	.743
6	64.1	5.8	61.2	8.7	.544	.99	1.99	.751
7	62.5	6.3	59.3	9.5	.511	.63	2.08	.730
8	62.3	5.8	58.8	9.3	.503	.55	.00	.735
9	Sunday.							
10	58.7	6.4	54.9	10.2	.441	4.90	1.99	.711
11	59.8	6.0	56.2	9.6	.461	5.11	.93	.726
12	59.9	5.5	56.6	8.8	.467	.18	.77	.747
13	59.7	5.5	56.4	8.8	.464	.15	.76	.745
14	60.2	5.1	57.1	8.2	.475	.27	.66	.760
15	60.5	5.4	57.3	8.6	.478	.29	.77	.749
16	Sunday.							
17	59.7	6.0	56.1	9.6	.459	.10	.92	.726
18	59.9	5.1	56.8	8.2	.470	.23	.64	.761
19	61.3	5.5	58.0	8.8	.489	.41	.85	.745
20	62.7	5.4	59.5	8.6	.515	.68	.87	.752
21	62.4	6.1	59.3	9.2	.511	.64	2.01	.737
22	62.6	5.9	59.6	8.9	.516	.70	1.95	.745
23	Sunday.							
24	60.4	6.1	56.7	9.8	.469	.18	2.01	.720
25	Xtmas.							
26	59.0	5.6	55.6	9.0	.452	.03	1.75	.742
27	60.0	5.2	56.9	8.3	.472	.23	.68	.757
28	59.4	6.0	55.8	9.6	.455	.05	.90	.727
29	60.5	6.4	56.7	10.2	.469	.18	2.10	.712
30	Sunday.							
31	56.8	7.4	51.6	12.6	.394	4.38	.31	.655

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Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Hour.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer for each hour during the month.			Mean Dry Bulb Thermometer.	Range of the Temperature for each hour during the month.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
Mid- night.	30.034	30.119	29.946	0.173	62.6	66.2	60.1	6.1
1	.027	.114	.944	.170	62.0	65.2	59.4	5.8
2	.019	.102	.930	.172	61.3	64.8	58.8	6.0
3	.013	.092	.924	.168	60.7	64.4	58.2	6.2
4	.009	.088	.919	.169	60.1	64.0	57.2	6.8
5	.022	.108	.930	.178	59.6	63.8	56.6	7.2
6	.039	.129	.944	.185	59.1	63.6	56.2	7.4
7	.065	.148	.974	.174	59.1	63.6	56.0	7.6
8	.092	.180	.998	.182	62.0	67.2	57.5	9.7
9	.113	.194	30.028	.166	66.2	70.6	62.6	8.0
10	.111	.186	.025	.161	69.3	73.8	65.8	8.0
11	.090	.168	.008	.160	72.2	76.2	69.0	7.2
Noon.	.057	.143	29.983	.160	74.8	78.2	71.4	6.8
1	.025	.140	.951	.189	76.3	79.4	73.6	5.8
2	.000	.086	.926	.160	77.2	80.5	74.0	6.5
3	29.985	.065	.912	.153	76.9	80.0	74.2	5.8
4	.980	.066	.902	.164	74.6	77.7	72.0	5.7
5	.986	.083	.911	.172	72.7	75.8	70.0	5.8
6	.994	.101	.914	.187	70.4	77.2	67.0	10.2
7	30.011	.119	.927	.192	68.2	71.1	64.8	6.3
8	.028	.131	.942	.189	66.8	69.8	63.2	6.6
9	.041	.145	.955	.190	65.6	69.0	62.4	6.6
10	.044	.144	.963	.181	64.5	67.6	61.4	6.2
11	.039	.141	.964	.177	63.8	68.1	61.6	6.5

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of December, 1855.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Hour.	Mean Wet Bulb Thermo- meter.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a Cubic foot of Air.	Additional Weight of Va- pour required for com- plete saturation.	Mean degree of Humidity, complete saturation be- ing unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
Mid- night.	59.8	2.8	57.8	4.8	0.486	5.43	0.94	0.852
1	59.3	2.7	57.4	4.6	.480	.36	.89	.858
2	58.7	2.6	56.6	4.7	.467	.23	.89	.855
3	58.0	2.7	55.8	4.9	.455	.10	.90	.850
4	57.6	2.5	55.6	4.5	.452	.07	.82	.861
5	57.3	2.3	55.5	4.1	.450	.06	.74	.872
6	56.9	2.2	55.1	4.0	.444	.00	.71	.876
7	57.0	2.1	55.3	3.8	.447	.03	.68	.881
8	58.7	3.3	56.4	5.6	.464	.18	1.07	.829
9	60.9	5.3	57.7	8.5	.485	.36	.76	.753
10	62.2	7.1	58.6	10.7	.499	.50	2.33	.702
11	63.5	8.7	59.1	13.1	.508	.56	.99	.650
Noon.	64.2	10.6	58.9	15.9	.504	.49	3.77	.593
1	64.4	11.9	58.4	17.9	.496	.38	4.31	.555
2	64.8	12.4	58.6	18.6	.499	.41	.54	.544
3	64.4	12.5	58.1	18.8	.491	.32	.54	.540
4	63.4	11.2	57.8	16.8	.486	.29	3.91	.575
5	63.9	8.8	59.5	13.2	.515	.63	.05	.649
6	64.0	6.4	60.8	9.6	.537	.90	2.20	.728
7	63.1	5.1	60.0	8.2	.523	.78	1.80	.763
8	62.4	4.4	59.8	7.0	.520	.75	.51	.792
9	61.8	3.8	59.5	6.1	.515	.71	.29	.816
10	61.2	3.3	59.2	5.3	.509	.67	.09	.839
11	60.7	3.1	58.5	5.3	.498	.54	.07	.838

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of December, 1855.*

Solar radiation, Weather, &c.

Date.	Max. Solar radiation.	Rain.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches		
1	127.0	..	Calm or N. or N. W.	Cloudless till 6 A. M. scattered \i and [\i afterwards.
2	<i>Sunday.</i>			
3	137.7	..	N. or N. E.	Cloudless till 5 A. M. scattered \i till 7 P. M. cloudless afterwards.
4	129.6	..	N. E. or N.	Cloudless and foggy till 5 A. M. scattered \i afterwards.
5	139.7	..	N.W. or N.N.E. or N.	Cloudless nearly the whole day.
6	137.2	..	N.	Cloudless till 8 A. M. scattered \i after-
7	139.0	..	N. or N. W.	Cloudless. [wards.
8	131.0	..	N. W. or N.	Cloudless.
9	<i>Sunday.</i>			
10	135.0	..	Calm or N. W. or W.	Cloudless.
11	137.0	..	Calm or W. or N.	Cloudless.
12	130.0	..	N. or W. or N. W.	Cloudless.
13	127.0	..	N. or W. or N. W.	Cloudless.
14	129.0	..	W. or N. W.	Cloudless till 11 A. M. scattered \i till 6 P. M. cloudless afterwards.
15	130.6	..	Calm or N. W. or W.	Cloudless.
16	<i>Sunday.</i>			
17	134.6	..	Calm or N. or N. W.	Cloudless.
18	129.0	..	N. W.	Cloudless.
19	132.0	..	N. W. or N.	Cloudless nearly the whole day.
20	131.7	..	N.	Scattered clouds of various kinds.
21	137.0	..	Variable winds.	Cloudless nearly the whole day.
22	134.0	..	N. N. W. or N.	Cloudless.
23	<i>Sunday.</i>			
24	131.0	..	W. or N. or N. W.	Cloudless.
25	<i>christmas</i>			
26	128.0	..	N.N.W. or W. or N. W.	Cloudless nearly the whole day.
27	131.5	..	N. W. or W.	Cloudless.
28	134.0	..	W.	Cloudless.
29	138.0	..	W. or W. N. W.	Cloudless.
30	<i>Sunday.</i>			
31	133.0	..	N.	Cloudless.

\i Cirri, \i Cirro-strati, \i Cumuli, \i Cumulo-strati, \i Nimbi, —i Strati, \i Cirro-cumuli.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of January, 1856.

Maximum pressure observed at 9.50 A. M.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.657	63.5	64.2	52.0	N. W.	..	Clear.
2	29.647	62.7	64.4	52.2	N. W.	..	Ditto.
3	29.617	62.8	64.5	54.5	N. W.	..	Ditto.
4	29.623	65.8	69.0	56.9	N. W.	..	∩ scattered all over.
5	29.547	66.0	66.0	57.0	E.	..	∩ scattered.
6	29.617	65.5	66.2	56.9	N. W.	..	Clear.
7	29.697	61.2	61.9	50.4	W.	..	Ditto.
8	29.659	60.5	61.3	49.4	W.	..	Ditto.
9	29.741	63.7	63.4	50.0	N. W.	..	Ditto.
10	29.757	63.8	64.5	53.0	S. E.	..	∩ scattered.
11	29.707	66.9	68.0	56.9	N.	..	Clear.
12	29.685	66.5	67.5	58.2	N. E.	..	Ditto.
13	29.653	66.0	67.1	57.9	N. W.	..	∩ scattered.
14	29.687	65.8	66.2	54.5	N. W.	..	∩ ditto.
15	29.671	60.2	61.1	53.5	N.	..	Clear.
16	29.725	61.0	62.4	53.0	N. W.	..	Ditto.
17	29.671	65.0	65.7	54.0	S. W.	..	Ditto.
18	29.641	65.0	66.0	56.0	W.	..	Ditto.
19	29.629	67.9	68.4	57.4	S. E.	..	∩ scattd. towards hor.
20	29.691	69.5	70.0	60.2	E.	..	∩ scattered.
21	29.675	69.0	69.0	60.5	E.	..	Clear.
22	29.635	65.5	65.7	58.2	W.	..	∩ scattered to S. E.
23	29.605	64.5	65.5	57.2	N. W.	..	∩ scattered.
24	29.573	64.5	64.9	58.5	N. W.	..	∩ ditto.
25	29.577	65.0	65.3	55.2	E.	..	∩ all over.
26	29.551	65.9	65.5	60.2	N. E.	..	∩ scattered.
27	29.531	61.5	62.2	58.4	N. W.	..	∩ ditto.
28	29.569	58.8	60.0	53.4	N. W.	..	∩ ditto.
29	29.509	63.0	63.0	54.0	N.	..	∩ ditto.
30	29.521	60.0	60.5	59.4	E.	0.47	∩ all over.
31	29.493	57.0	56.5	55.9	N. E.	..	∩ ditto.
Mean.	29.631	64.0	64.7	55.6		0.47	

Barometer Observations corrected for Capillarity only.

Symbols. {
 ∩ Cirrus.
 ∩ Cirro strata.
 ∩ Cumuli.
 ∩ Cumulo strata.
 ∩ Nimbi or Nimbus.

Note.—The dry bulb and maximum Register do not agree; the former always reads more than the latter. The average difference is 1.6.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of January, 1856.

Observations at apparent Noon.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.621	67.5	69.0	54.0	N. W.	..	Clear.
2	29.615	69.0	69.3	55.2	N. W.	..	Ditto.
3	29.589	69.0	70.4	54.9	N. W.	..	Ditto.
4	29.583	70.5	70.5	57.8	W.	..	∪ scattered all over.
5	29.501	69.9	70.2	57.5	S. W.	..	∪ scattered.
6	29.583	69.7	70.5	57.8	N. W.	..	Clear.
7	29.679	67.6	67.6	52.7	W.	..	Ditto.
8	29.639	66.9	67.5	51.4	N. W.	..	∪ scattd. towards S. E.
9	29.697	67.8	67.4	53.0	N. W.	..	∪ scattered.
10	29.715	67.0	68.4	53.7	N. W.	..	∪ Do. towards horizon.
11	29.677	70.2	70.2	55.5	N.	..	Clear.
12	29.641	72.2	73.0	59.4	N. E.	..	Ditto.
13	29.611	71.8	72.4	59.4	N. W.	..	∪ scattered.
14	29.641	71.0	71.4	59.5	N. W.	..	∪ ditto.
15	29.635	66.8	66.9	53.9	W.	..	Clear.
16	29.707	67.8	68.4	54.5	N. W.	..	Ditto.
17	29.629	69.9	69.9	54.9	N. W.	..	Ditto.
18	29.615	68.9	69.4	56.5	W.	..	∪ scattered.
19	29.593	72.8	72.2	58.5	S. W.	..	∪ ditto.
20	29.662	74.0	74.0	61.0	E.	..	∪ ditto.
21	29.657	74.0	73.9	62.0	E.	..	Clear.
22	29.587	70.8	71.0	60.5	W.	..	Ditto.
23	29.577	70.8	71.2	57.5	N. W.	..	∪ scattered.
24	29.549	69.4	69.4	59.5	N. W.	..	∪ ditto.
25	29.557	71.9	71.4	56.0	E.	..	∪ to W. ∪ scattered.
26	29.511	69.9	70.4	59.3	N. E.	..	∪ scattered.
27	29.491	65.6	65.9	59.0	N. W.	..	∪ ditto.
28	29.441	65.0	65.5	55.2	N. W.	..	∪ ditto.
29	29.475	68.8	68.8	58.2	N.	..	∪ all over.
30	29.503	62.9	62.5	59.5	S. E.	..	∪ ditto.
31	29.493	59.0	59.3	58.0	N. W.	..	∪ ditto.
Mean.	29.596	68.9	69.2	56.9			

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of January, 1856.

Minimum pressure observed at 4 P. M.

Date.	Barometer.	Temperature.			Maximum and Minimum.			Aspect of the Sky.	Direction of Wind.	Quantity of Rain.	Total Rain.
		Of Mercury.	Of Air.	Wet Bulb.	Maximum.	Minimum.	Mean.				
1	29.543	75.5	74.2	55.7	74.5	49.0	61.75	Clear.	N. W.	..	..
2	29.557	76.7	75.5	58.6	76.0	49.0	62.5	Ditto.	N. W.	..	..
3	29.527	75.9	74.5	59.9	75.0	51.8	63.4	✓ scattered.	N. W.	..	..
4	29.533	75.5	74.5	60.4	75.0	54.8	64.9	✓ toward W.	W.	..	..
5	29.471	75.9	75.3	62.0	75.5	54.0	64.75	✓ scattered.	W.	..	..
6	29.	76.3	75.5	61.2	75.8	51.8	63.8	Clear.	N. W.	..	..
7	29.611	71.8	70.5	54.0	71.5	50.0	60.75	Ditto. [s.e.	W.	..	..
8	29.585	65.0	65.0	52.0	69.0	47.8	58.4	✓ scatd. twds.	N. W.	..	..
9	29.671	72.8	72.5	53.9	72.8	49.0	60.9	✓ scattered.	N. W.	..	..
10	29.675	71.7	71.0	59.0	72.0	52.5	62.25	✓ all over.	N.	..	..
11	29.633	76.0	75.4	60.0	75.5	56.0	65.75	Clear.	N. E.	..	..
12	29.577	77.8	77.0	62.5	77.5	54.0	65.75	✓ scattered.	N. W.	..	..
13	29.571	74.8	73.9	61.4	74.5	54.5	64.5	Clear.	N. W.	..	..
14	29.577	75.8	75.5	61.0	75.5	56.5	66.0	Ditto.	N. W.	..	..
15	29.579	73.5	72.4	57.4	73.0	52.0	62.5	Ditto.	W.	..	..
16	29.663	74.9	73.9	56.8	74.3	50.0	62.15	✓ scatd. twds. s.	N. W.	..	..
17	29.533	75.0	74.2	56.0	75.0	54.0	63.0	Clear.	N. W.	..	..
18	29.549	76.0	75.5	60.6	75.0	51.0	63.25	Ditto.	W.	..	..
19	29.539	77.0	76.1	61.0	77.0	55.0	66.0	✓ scattered.	S. W.	..	..
20	29.617	78.8	78.0	64.2	78.0	55.0	66.5	Clear.	E.	..	..
21	29.615	79.4	79.2	63.6	79.4	56.0	67.7	Ditto.	S. W.	..	..
22	29.541	76.0	75.4	62.4	76.5	56.0	66.25	✓ scattered.	N. W.	..	..
23	29.535	75.0	74.2	60.5	76.5	55.5	66.0	✓ ditto.	N. W.	..	..
24	29.503	74.9	73.9	58.5	76.0	55.8	65.9	✓ ditto.	W.	..	..
25	29.475	74.6	74.2	58.3	75.0	56.0	65.5	✓ to w. ✓ scat.	E.	..	..
26	29.455	74.0	73.9	64.4	74.5	57.0	65.75	✓ scattered.	N. E.	..	..
27	29.459	71.0	70.5	58.0	71.0	52.5	61.75	✓ ditto.	N. W.	..	..
28	29.465	69.5	69.0	59.2	69.5	50.0	59.75	✓ ditto.	N. W.	..	..
29	29.421	69.9	69.2	58.9	70.0	50.0	60.0	✓ all over.	N.	..	..
30	29.425	66.0	66.0	61.5	66.0	57.5	61.75	✓ scattered all	S. E.	..	..
31	29.417	64.0	63.8	60.5	64.0	52.0	58.0	Clear. [over.	N. W.	..	..
Mean.	29.527	73.9	73.2	59.3	73.9	53.0	63.45				

Metcorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of February, 1856.

Maximum pressure observed at 9.50 A. M.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.533	65.5	57.5	58.5	S. W.	..	∩ scattered.
2	29.595	59.8	60.8	55.9	S. W.	..	Clear.
3	29.531	68.8	69.0	56.5	E.	..	∩ scattered
4	29.601	62.8	64.0	54.0	S. W.	..	Clear.
5	29.689	62.7	63.9	55.0	N. W.	..	Ditto.
6	29.643	65.9	67.0	53.0	N. W.	..	Ditto.
7	29.617	65.5	66.0	56.0	N. W.	..	Ditto.
8	29.573	68.0	68.9	56.5	S. W.	..	Ditto.
9	29.527	70.0	70.0	58.0	S.	..	Ditto.
10	29.516	69.7	70.3	57.0	N. W.	..	Ditto.
11	29.505	69.3	70.5	56.0	N. W.	..	Ditto.
12	29.465	70.5	71.5	58.0	N. W.	..	Ditto.
13	29.421	73.0	73.4	59.8	N.	..	Ditto.
14	29.573	69.5	70.0	56.1	N. W.	..	Hazy.
15	29.569	65.8	67.0	53.5	N. W.	..	Clear.
16	29.601	65.2	65.2	52.5	N. W.	..	Ditto.
17	29.643	67.0	68.0	53.5	N. W.	..	Ditto.
18	29.619	67.0	67.8	54.0	W.	..	Ditto.
19	29.647	67.0	68.5	55.0	N. W.	..	Ditto.
20	29.665	69.2	70.8	56.5	N. W.	..	Ditto.
21	29.627	67.8	69.0	56.5	N. W.	..	Ditto.
22	29.579	73.0	74.0	56.6	W.	..	Ditto.
23	29.555	73.5	73.9	59.4	W.	..	∩ scattered.
24	29.525	74.7	74.8	59.5	N. E.	..	∩ ditto.
25	29.495	75.9	75.7	60.9	E.	..	∩ all over.
26	29.535	74.9	75.0	59.5	N. W.	..	∩ scattered
27	29.487	70.2	71.0	55.5	N. W.	..	Clear.
28	29.531	71.0	71.2	56.0	N. W.	..	Ditto.
29	29.603	73.0	73.5	57.5	N. W.	..	Ditto.
Mean.	29.568	68.8	69.2	56.4			

Barometer Observations corrected for Capillarity only.

Symbols. {
 \ Cirrus.
 ∩ Cirro strata.
 > Cumuli.
 ∩ Cumulo strata.
 ∩ Nimbi or Nimbus.

Note.—The dry bulb and maximum Register do not agree, the former always reads more than the latter. The average difference is 1.6.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of February, 1856.

Observations at apparent Noon.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.509	60.7	62.4	59.0	S. W.	..	Clear.
2	29.575	65.0	65.2	56.8	S. W.	..	Ditto.
3	29.531	68.8	69.0	56.5	E.	..	~ scattered.
4	29.581	68.0	68.7	54.0	N. W.	..	Clear.
5	29.577	69.2	69.5	53.0	N. W.	..	Ditto.
6	29.611	69.5	69.5	54.6	N. W.	..	Ditto.
7	29.597	70.0	70.0	55.5	W.	..	~ scattered in zenith.
8	29.547	72.0	71.9	56.5	S. W.	..	Clear.
9	29.505	73.8	73.0	58.5	S.	..	Ditto.
10	29.492	75.2	75.5	58.0	N. W.	..	Ditto.
11	29.479	76.5	77.5	57.5	N. W.	..	Ditto.
12	29.445	77.0	77.9	58.8	N. W.	..	Ditto.
13	29.387	76.0	77.0	59.5	N.	..	Ditto.
14	29.559	72.8	71.9	54.4	N. W.	..	Hazy.
15	29.561	72.0	72.2	55.4	W.	..	Clear.
16	29.581	72.0	72.0	53.5	N. W.	..	Ditto.
17	29.607	73.0	73.9	54.2	N. W.	..	Ditto.
18	29.597	74.0	74.3	53.8	W.	..	Ditto.
19	29.639	73.5	74.9	56.0	N. W.	..	Ditto.
20	29.635	74.8	75.2	57.0	W.	..	Ditto.
21	29.617	75.9	76.5	58.0	W.	..	Ditto.
22	29.549	79.0	79.5	58.2	W.	..	Ditto.
23	29.535	79.0	79.5	59.8	W.	..	~ scattered.
24	29.505	79.5	80.0	60.0	N. E.	..	~ ditto.
25	29.491	80.8	80.2	63.5	E.	..	~ all over.
26	29.523	80.5	80.6	60.6	N. W.	..	~ scattered.
27	29.467	76.5	76.5	56.0	N. W.	..	Clear.
28	29.511	76.5	76.4	58.5	N. W.	..	Ditto.
29	29.595	78.3	79.5	58.4	N. W.	..	Ditto.
Mean.	29.545	73.7	74.1	57.1			

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of February, 1856.

Minimum pressure observed at 4 P. M.

Date.	Barometer.	Temperature.			Maximum and Minimum.			Aspect of the Sky.	Direction of Wind.	Quantity of Rain.
		Of Mercury.	Of Air.	Wet Bulb.	Maximum.	Minimum.	Mean.			
1	29.465	68.8	68.9	57.9	68.5	49.0	58.75	Clear.	N. W.	..
2	29.545	71.0	70.5	58.0	70.0	48.8	59.4	Ditto.	S. W.	..
3	29.499	71.5	71.0	55.0	71.0	53.0	62.0	~ scattered.	E.	..
4	29.513	74.8	74.3	58.5	74.5	51.0	62.75	Clear.	N. W.	..
5	29.527	74.8	74.4	55.8	74.5	52.0	63.25	Ditto.	N. W.	..
6	29.559	75.0	74.8	57.5	74.8	52.0	63.4	Ditto.	N. W.	..
7	29.507	76.0	75.8	61.4	76.0	52.0	64.0	Ditto.	N. W.	..
8	29.461	76.8	76.0	57.3	76.5	53.8	65.15	Ditto.	W.	..
9	29.427	77.5	77.0	60.5	77.0	56.5	66.75	Ditto.	S. W.	..
10	29.421	80.4	80.3	60.0	80.5	55.0	67.75	Ditto.	N. W.	..
11	29.415	83.8	83.5	59.5	83.5	54.0	68.75	Ditto.	N. W.	..
12	29.365	85.5	85.4	65.2	85.4	59.5	72.45	Ditto.	W.	..
13	29.323	83.9	83.5	63.0	84.0	59.5	71.75	Ditto.	W.	..
14	29.507	77.0	75.9	54.6	76.5	63.8	70.15	Ditto.	N. W.	..
15	29.467	76.9	76.5	55.0	76.5	54.5	65.5	Ditto.	N. W.	..
16	29.523	77.9	77.4	58.0	77.8	55.0	66.4	Ditto.	N. W.	..
17	29.549	78.0	77.9	61.0	78.0	52.5	65.25	Ditto.	N. W.	..
18	29.529	80.2	80.0	56.0	80.0	52.0	66.0	Ditto.	N. W.	..
19	29.587	81.0	80.5	58.6	81.0	54.0	67.5	Ditto.	N. W.	..
20	29.565	82.0	82.0	58.0	82.0	58.0	70.0	Ditto.	W.	..
21	29.533	83.8	83.2	60.0	83.5	60.0	71.75	Ditto.	N. W.	..
22	29.479	86.0	85.9	61.2	86.0	61.0	73.5	Ditto.	W.	..
23	29.481	85.5	86.4	61.0	86.5	63.5	75.0	~ scattered.	W.	..
24	29.491	86.8	87.0	61.5	87.0	65.0	76.0	~ ditto.	W.	..
25	29.445	82.5	82.0	64.4	83.0	67.0	75.0	~ all over.	S. W.	..
26	29.437	86.5	85.8	64.9	86.5	65.5	76.0	~ scattered.	N. W.	..
27	29.387	81.9	81.4	58.5	81.5	59.0	70.25	Clear.	N. W.	..
28	29.453	81.7	81.1	60.5	81.5	58.0	69.75	Ditto.	N. W.	..
29	29.523	84.0	84.9	62.2	84.2	61.0	72.6	Ditto.	N. W.	..
Mean.	29.482	79.7	79.4	59.4	79.5	56.7	68.16			

